Konica

SERVICE MANUAL

MODEL

7045

NOVEMBER 2000

CSM-7045

KONICA BUSINESS TECHNOLOGIES, INC.

7045

SERVICE MANUAL

NOVEMBER 2000

IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Business Technologies strongly recommends that all servicing be performed by Konica-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Business Technologies, Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

Corporate Publications Department

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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

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Changes may have been made to this copier to improve its performance after this Service Handbook was printed. Accordingly, Konica Corporation, makes no representations or warranties, either expressed or implied, that the information contained in this Service Handbook is complete or accurate. It is understood that the user of this Service Handbook must assume all risks or personal injury and/or damage to the copier while servicing the copier for which this Service Handbook is intended. Therefore, this Service Handbook must be read carefully before doing service work both in the course of the technical training and even after that, for keeping the correct maintenance and control of the copier. Keep this Service Handbook also for the future service. When it is impossible to read the description about safety and warning (due to contamination or tear), the relevant page should be replaced.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In this Service Handbook, each of three expressions, "⚠ DANGER", "⚠ WARNING" and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing, the relevant works (disassembling, assembling, adjustment, repair and maintenance) need to be conducted with utmost care.

⚠ DANGER:	**Actions having a high possibility of suffering death or serious wound**
⚠ WARNING:	**Actions having a possibility of suffering death or serious wound**
⚠ CAUTION:	**Actions having a possibility of suffering a slight wound, medium trouble and material damage**

SAFETY WARNINGS

[1] Modifications Not Authorized by Konica

Konica copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

Photocopier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degrading performance and safety. Such modifications are therefore strictly prohibited. The points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

⚠ **PROHIBITED ACTIONS :**

(1) Using extension cables or a different power cord than specified by Konica.
(2) Using other fuses than specified by Konica. Safety will not be assured, leading to a risk of fire and injury.
(3) Disabling fuses or bridging fuse terminals with wire, metal clips, solder or similar. (This applies also to thermal fuses.)
(4) Removing air filters (except for replacement).
(5) Disabling relay functions (such as wedging paper between relay contacts, etc.).
(6) Disabling safety functions (interlocks, safety circuits, etc.). Safety will not be assured, leading to a risk of fire and injury.
(7) Performing actions to copier not described in the instruction manual or the service handbook.
(8) Using parts other than specified by Konica.

[2] Checkpoints When Performing On-site Service

Konica copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the customer engineer must perform regular safety checks.

1. Advance Preparation for Safety Checks

⚠ **CAUTION:**

(1) Wear clothing that facilitates work and is designed for safety.
(2) Carry out all procedures carefully to prevent injury.
(3) Be sure to disconnect the power cord of the copier and all optional equipment from the AC outlet. Simply turning off the power switch is not sufficient, because paper feed units or other electrical equipment may be powered also when the power switch is turned off.
(4) Proceed with special care when performing operation checks or adjustment while the unit is powered. When carrying out operation checks or adjustment while external covers are removed, the risk of electrical shock exists when touching parts which carry high voltage or electrical charge. The risk of injury exists when touching moving parts such as gears or chains.

2. Safety Checkpoints

The following list is not exhaustive, but it includes actions which must be carried out at every on-site service.

⚠ **CAUTION:**

(1) Check external covers and the frame for sharp edges, burrs, or nicks.
(2) Check external covers and hinges for loosening or damage.
(3) Check wiring for squeezing or damage.
(4) Check power cord for insulation problems (conductor must not be exposed).
(5) Check power cord and cable ties etc. for loosening from frame.

⚠ **WARNING:**

(1) Verify that the copier is properly grounded. If a problem is detected, establish a proper ground connection.
(2) Connecting the ground lead to an improper point such as listed below results in a risk of explosion and electric shock.
Unsuitable ground points:
- **Gas pipe**
- **Lightning rod**
- **Telephone line ground**
- **Plastic water pipe or water pipe or faucet that has not been approved by authorities for grounding use**

3. Description of Safety Checks

⚠ **CAUTION:**

(1) Before performing safety check work, read all relevant documentation (service handbook, technical notices, etc.) and proceed according to the prescribed procedure, using only the prescribed tools. Do not carry out any adjustments not described in the documentation.

(2) If the power cord is damaged, replace it only with the specified power cord. If the power cord insulation has been damaged and there are exposed sections, short- circuits and overheating may occur, leading to a serious fire risk.

(3) Do not route the power cord so that it can be stepped on or pinched. Otherwise overheating may occur, leading to a serious fire risk.

(4) When disconnecting any cables, always grasp the connector and not the cable (especially in the case of AC and high-voltage leads).

(5) Carefully remove all toner remnants from electrical parts, electrodes, etc.

(6) Make sure that wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

(7) Double-check to make sure that all screws, components, wiring, connectors, etc. that were removed for safety check maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

(8) When installation and preventive maintenance, verify that the power cord has been securely plugged into the AC outlet. Contact problems may lead to increased resistance, overheating, and the risk of fire.

⚠ **WARNING:**

(1) Before disassembling or adjusting the write unit or any parts that use a laser, make sure that the power cord has been disconnected.

(2) Do not remove the main cover of the write unit. Direct exposure of the eye to laser beams may lead to blindness.

(3) Do not turn the copier on while the write unit is not installed in its normal position.

(4) Danger of explosion if battery is incorrectly replaced, replace only with the same or equivalent recommended by the manufacturer. Discard used batteries according to the manufacture's instructions.

⚠ **VORSICHT:**

Expiosionsgefahr dei unsachegemäßem Austausch der Battetie. Ersatz nur durch denselben oder einen vom. Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

[3] Handling of Materials for Servicing

⚠ **CAUTION: Drum cleaner (alcohol-based) and roller cleaner (acetone- based) are highly flammable and must be handled with care. When using these materials for cleaning of copier parts, observe the following precautions.**

(1) Disconnect the power cord from the AC outlet.

(2) Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

(3) Perform cleaning only in an environment where sufficient ventilation is assured. Breathing large quantities of organic solvents can lead to discomfort.

(4) Do not replace the cover or turn the unit on before any solvent remnants on the cleaned parts have fully evaporated.

⚠ **CAUTION: Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes etc. It may be stimulative. If the substances get in the eye, rinse it with plenty of water immediately. When symptoms are noticeable, consult a physician.**

[4] Measures to Take in Case of an Accident

(1) If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.

(2) If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and Konica Corporation must be notified.

(3) To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by Konica Corporation.

(4) For reports and measures concerning accidents, consult your superior, and follow the regulations set in "Standards for the Control Program for Measures Against Electrical Equipment Accidents".

[5] Conclusion

(1) Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate by the proper daily service work conducted by the customer engineer.

(2) When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION

IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1" laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

SAFETY CIRCUITS

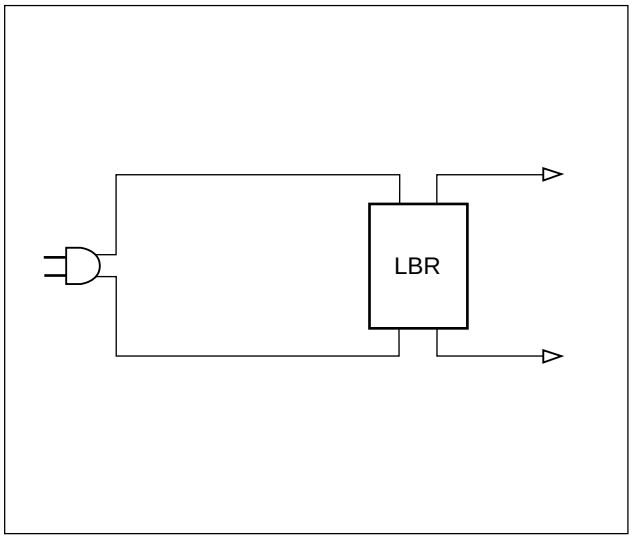
This unit incorporates the following electrical safety circuits to guard against the risk of accidents in case of any malfunction.

[1] Overall protection circuit

[2] L2/L3 (fixer heater lamps) overheat protection circuit

Operation principles of these safety circuits are described below. It is necessary to understand this information fully, in order to prevent mistakes during servicing.

[1] Overall protection circuit

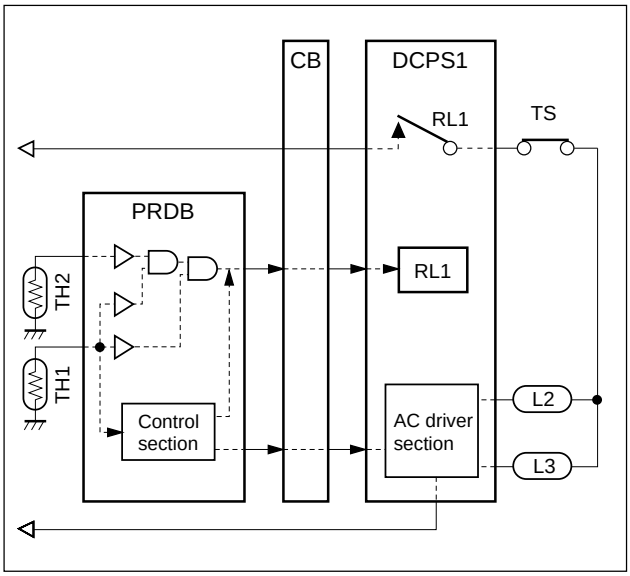


1. LBR (line breaker) protection

When an excessively large current flows due to a short-circuit in the AC line, the AC line itself is instantly cut off due to the action of this circuit breaker.

⚠ **CAUTION: The line breaker must not be disabled under any circumstances.**

[2] L2/L3 (fixer heater lamps) overheat protection circuit



1. Software protection

The output voltage of TH1 (fixer temperature sensor 1) is constantly read by the CPU. If the voltage becomes abnormal, L2 (fixer heater lamp 1), L3 (fixer heater lamp 2), and RL1 (main relay) are set to OFF.

⚠ **CAUTION: The clearance between the roller and TH1 may not be altered.**
After replacement, verify that dimensions correspond to specifications.
RL1 may not be disabled under any circumstances.

2. Hardware protection

The output voltages of TH1 and TH2 (fixer temperature sensors) are compared to a reference voltage in the comparator circuit. If the voltage exceeds the threshold, L2, L3, and RL1 are set to OFF in hardware.

⚠ **CAUTION: Periodically check the roller contact area of TH2 and replace the sensor if any problem is detected.**
Since the TH1 is non-contact, check the distance from the roller and installing orientation of the sensor when an abnormality has occurred.
RL1 may not be disabled under any circumstances.

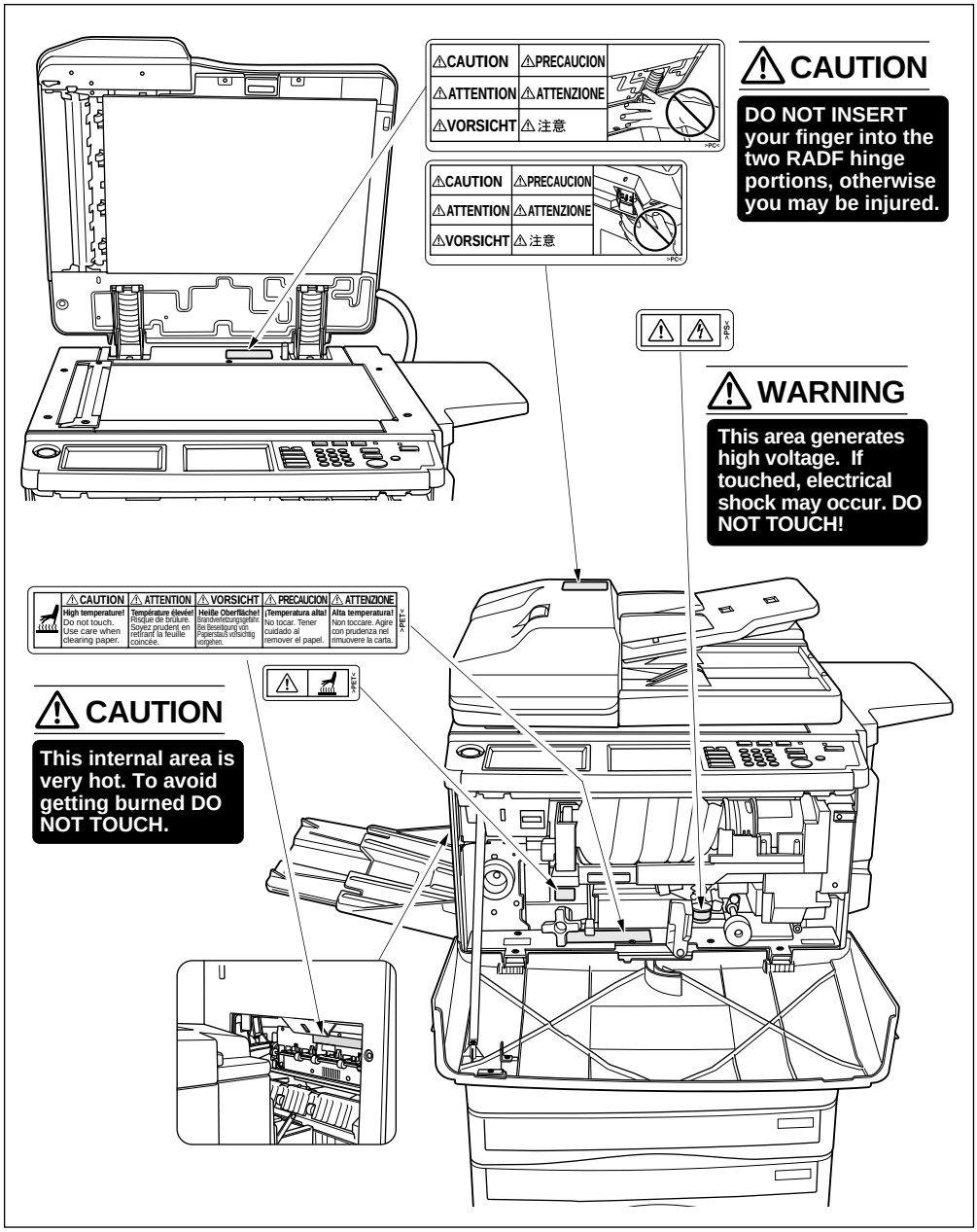
3. TS (thermostat) protection

If the fixer roller temperature exceeds the threshold, TS goes OFF and directly cuts power to L2 and L3.

⚠ **CAUTION: TS may not be replaced by any other conductor.**
Do not change the distance between the TS and roller.

INDICATION OF WARNING ON THE MACHINE

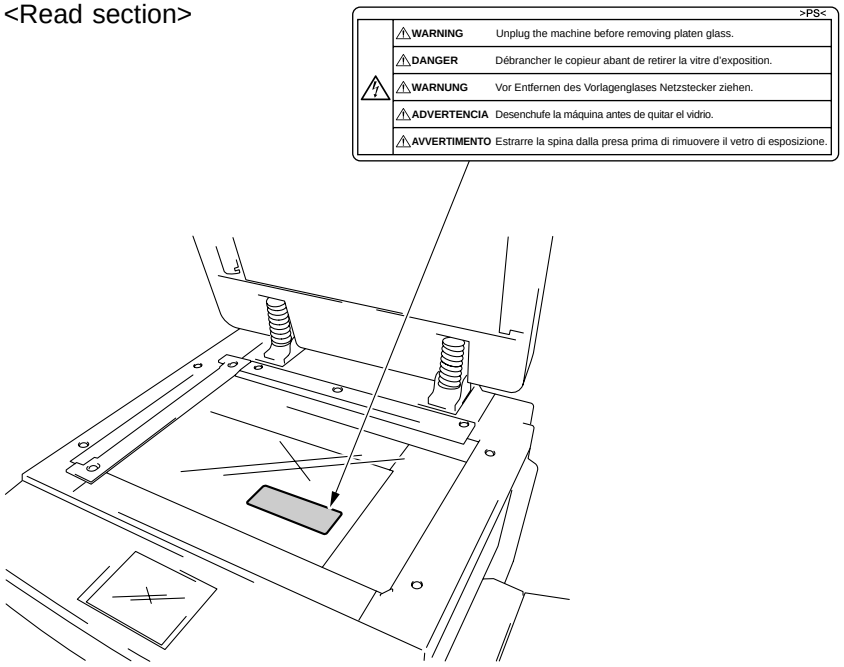
The caution labels are attached to the machine areas, as shown below, where you are advised to pay special attention to avoid any dangerous situations or serious injury.


⚠CAUTION ⚠PRECAUCION
⚠ATTENTION ⚠ATTENZIONE
⚠VORSICHT ⚠注意
⚠ CAUTION
DO NOT INSERT your finger into the two RADF hinge portions, otherwise you may be injured.
⚠ WARNING
This area generates high voltage. If touched, electrical shock may occur. DO NOT TOUCH!
⚠ CAUTION ⚠ ATTENTION ⚠ VORSICHT ⚠ PRECAUCION ⚠ ATTENZIONE
High temperature! Do not touch. Use care when clearing paper.
Température élevée! Risque de brûlure. Soyez prudent en retirant la feuille coincée.
Heiße Oberfläche! Brandverletzungsgefahr. Bei Beseitigung von Papierstaus vorsichtig vorgehen.
¡Temperatura alta! No tocar. Tener cuidado al remover el papel.
Alta temperatura! Non toccare. Agire con prudenza nel rimuovere la carta.
⚠ CAUTION
This internal area is very hot. To avoid getting burned DO NOT TOUCH.

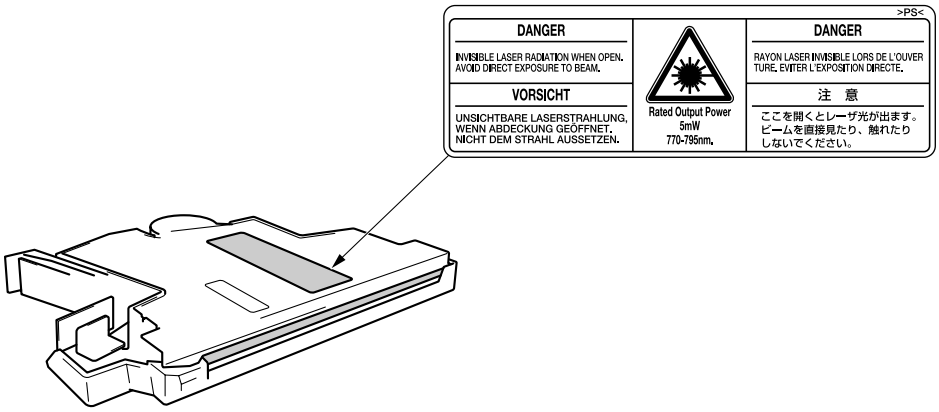
⚠ CAUTION:

If you carry out work on the machine without reading these warning labels, an unexpected accident may occur, resulting in possible blindness. DO NOT REMOVE these warning labels.
Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label.
If you cannot make it legible or if the caution label is removed, please contact your Service Centre.

<Read section>


>PS<
⚠WARNING Unplug the machine before removing platen glass.
⚠DANGER Débrancher le copieur abant de retirer la vitre d'exposition.
⚠WARNUNG Vor Entfernen des Vorlagenglases Netzstecker ziehen.
⚠ADVERTENCIA Desenchufe la máquina antes de quitar el vidrio.
⚠AVVERTIMENTO Estrarre la spina dalla presa prima di rimuovere il vetro di esposizione.

<Write unit>

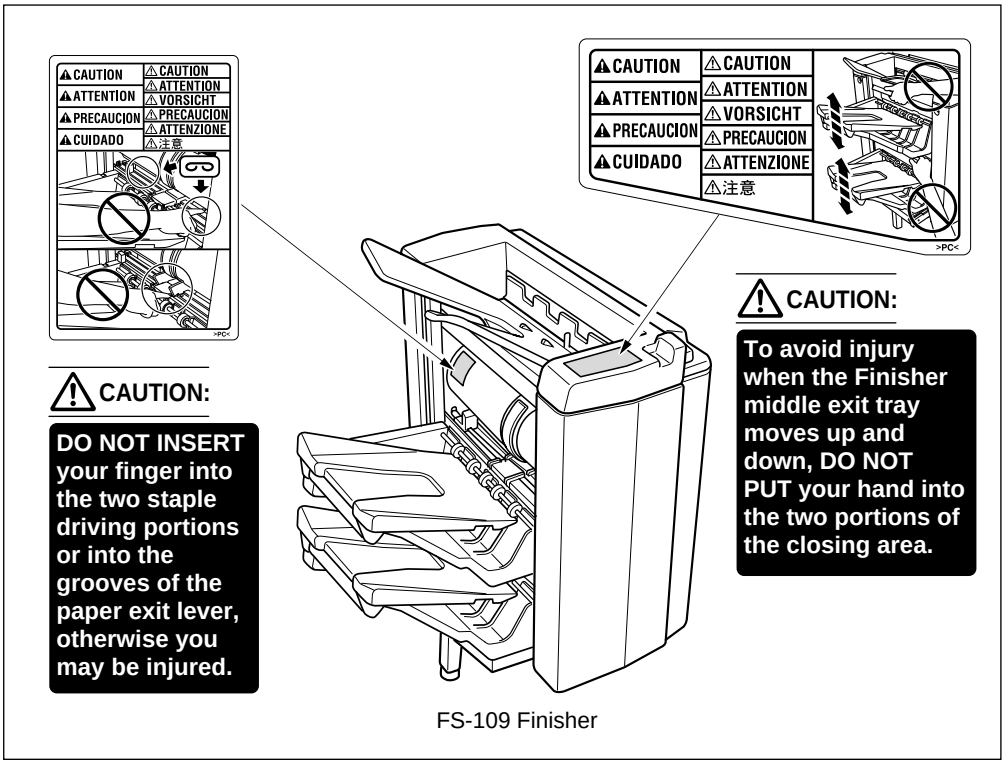


⚠ CAUTION:

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.

Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label.

If you cannot make it legible or if the caution label is removed, please contact your Service Centre.


CAUTION
ATTENTION
PRECAUCION
CUIDADO
VORSICHT
ATTENZIONE
注意
CAUTION:
DO NOT INSERT your finger into the two staple driving portions or into the grooves of the paper exit lever, otherwise you may be injured.
CAUTION:
To avoid injury when the Finisher middle exit tray moves up and down, DO NOT PUT your hand into the two portions of the closing area.

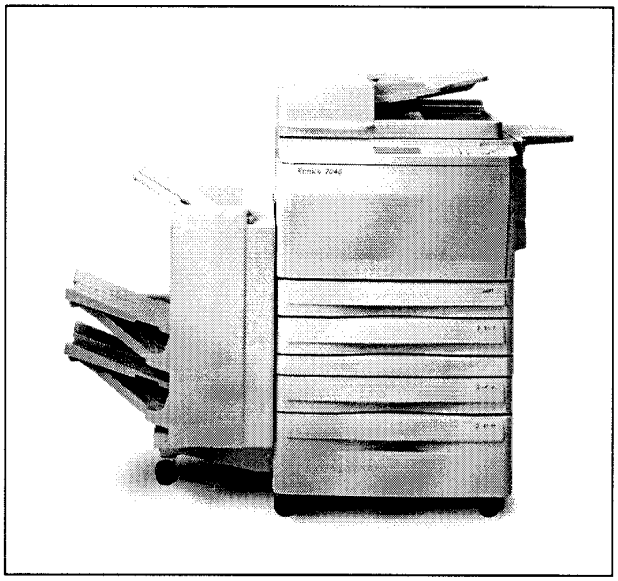
FS-109 Finisher

⚠ CAUTION:

If you carry out work on the machine without reading these warning labels, an unexpected accident may occur, resulting in possible blindness. DO NOT REMOVE these warning labels.
Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label.
If you cannot make it legible or if the caution label is removed, please contact your Service Centre.

7045 Copier/Printer System Configurator

Konica



Machine and Accessories

Item Description	Item Number
7045 Copier	950624
Finisher (FS-109)	950626
Drawer Base w/3 PFUs (DB-208)	950406
Drawer Base w/LCT (DB-608, 1 Tray, 1 LCT	950405
Memory 32 MB (MU-403) **	950217
Memory 64 MB (MU-404) **	950218
Memory 128 MB (MU-405)**	950219

Print Controller

Item Description	Item Number
IP-431 Print Controller	950628
Post Script Kit (PS-342)***	950625
Ethernet Network Card (KN-303)	950230
Hard Disk Drive (HD-103) w/Scanner	950231

* Supplied with copier

** Memory for engine and controller

*** PS Kit (PS-342) available late 4th Quarter

Power Requirements:

NEMA-6-15R

115V/60Hz (15 AMP Outlet)

Dedicated Line Advised

Supplies

Item Description	Item Number
Toner	950414
Developer	950412
Drum Unit *	950411
Staples FS-109	950764

Maintenance Kit	950413
(All Maintenance items supplied with unit.)	
Cleaning Blade	Filter (S) & Filter (H)
Fixing Cleaning Roller	Chg & Dischg Wires
Pad (O)	Fixing Oil Roller
Wire Cleaning	Dustproof Filter
Material (1) & (2) Collection Roller Assembly	Charging Cleaning Assembly Block

Key Counter

Service Parts			
Type	Receptacle	Holder	Item No
Standard	Part Number	Part Number	944907
	U021-0020	6011969	
Xerox Compatible	U050-0120	Not Required	943102

10/10/00

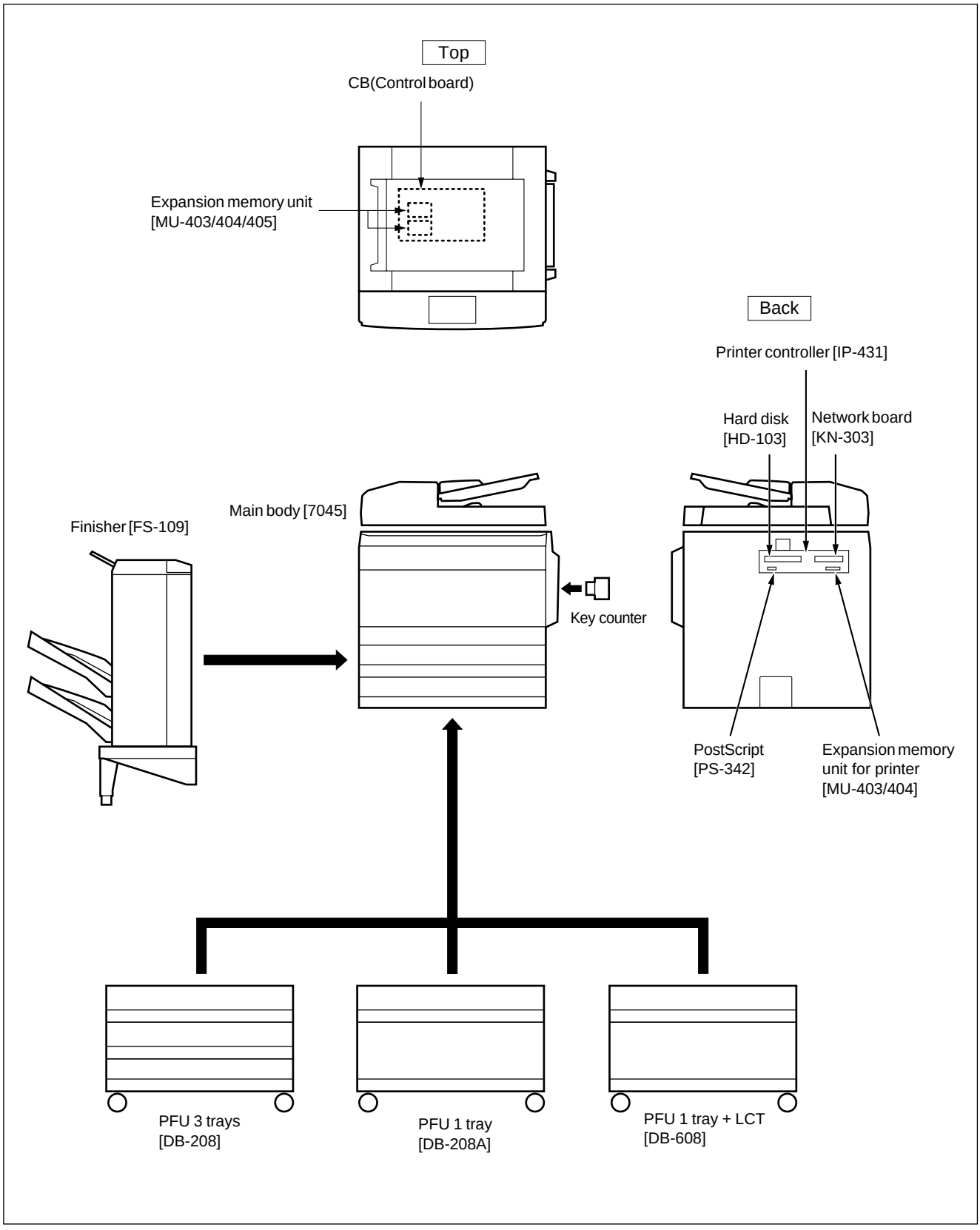
Konica

7045

MAINBODY SECTION

OUTLINE

OUTLINE OF SYSTEM



7045 PRODUCT SPECIFICATIONS

1. Type

Type: Semi-console type

Copying method: Indirect electrostatic method

Original table method:

Fixed

Photosensitive material:

OPC

Sensitizing method: Laser writing

Paper feed trays: One stacked tray (500 sheets; 21 lb)

Multisheet by-pass tray (100 sheets; 21 lb)

PFU (500 sheets/tray, 21 lb x 1 tray, or 3 trays)*1

LCT (1500 sheets; 21 lb)*1

*1: Option

2. Functions

Originals: Sheets; book; solid object

Original size: A3 max.

Copy sizes: 11 x 17, 8.5 x 14, 8.5 x 11, 5.5 x 8.5

ADU usable paper size:

11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R,

Magnification:

Fixed magnifications:

x0.50, x0.65, x0.77, x1.00, x1.29, x1.55, x2.00

Special ratio: Three kinds.

Zoom magnifications:

x0.25 to x4.00 (1% steps)

Vertical magnifications:

x0.25 to x4.00 (1% steps)

Horizontal magnifications:

x0.25 to x4.00 (1% steps)

Warm-up time: Within 90 seconds (at 20½C, at rated voltage)*1

*1 Warm-up time differs depending on the Power Source (Voltage).

First copy out time: Approx. 3.9 seconds

* When using face-up paper exit, manual mode, platen mode and tray 1 are in use.

Continuous copy speed (life size copies/min):

Size	CPM
8.5x11	45

Continuous copy count:

1 to 999

Copy density selections:

manual (9 steps), AES
Arbitrary density (2 modes)

Resolution: 600 dpi x 600 dpi

E-RDH memory: Standard 32 MB

Maximum 288 MB

Application functions: Sheet/Cover Insertion, Chapter, Combination (2-in-1, 4-in-1, 8-in-1), Booklet, Special paper, Image Insert, Dual page, Special Original, Text/Photo Enhance (text/photo/Increase), Reverse Image, Repeat, Frame/Fold Erasure, Auto Layout, Image Shift, Non-image Area Erase, memory function, density monitor, single step copy, density shift, printing function, copy reservation, original rotation, weekly timer, job memory, KRDS

3. Applicable copy paper

Plain paper: 16 to 24 lb high-quality paper

Special paper: Label paper

(by-pass feed only) OHP film

Blueprint-master paper

13 to 16 lb high-quality paper

24 to 35 lb high-quality paper

4. Options

Finisher:	FS-109
Drawer base unit:	DB-208 (500 x 3 trays)
	DB-208A (500 x 1 tray)
	DB-608 (500 X 1 tray + 1500 LCT)
Key counter	
Expansion memory unit:	MU-403 (32MB DIMM)
	MU-404 (64MB DIMM)
	MU-405 (128MB DIMM)
Printer controller:	IP-431
Hard disk:	HD-103
Network board:	KN-303
PostScript:	PS-342

5. Particulars of machine

Power supply:	120 VAC ±10.0%
Power consumption:	Max. 1500W
(Full option)	
Weight:	Approx. 229 lbs.
Machine dimensions:	Width: 25.5 in.
	Depth: 27.75 in.
	Height: 29.3 in.

6. Maintenance and Life

Maintenance: Every 100,000 copies

7. Consumables

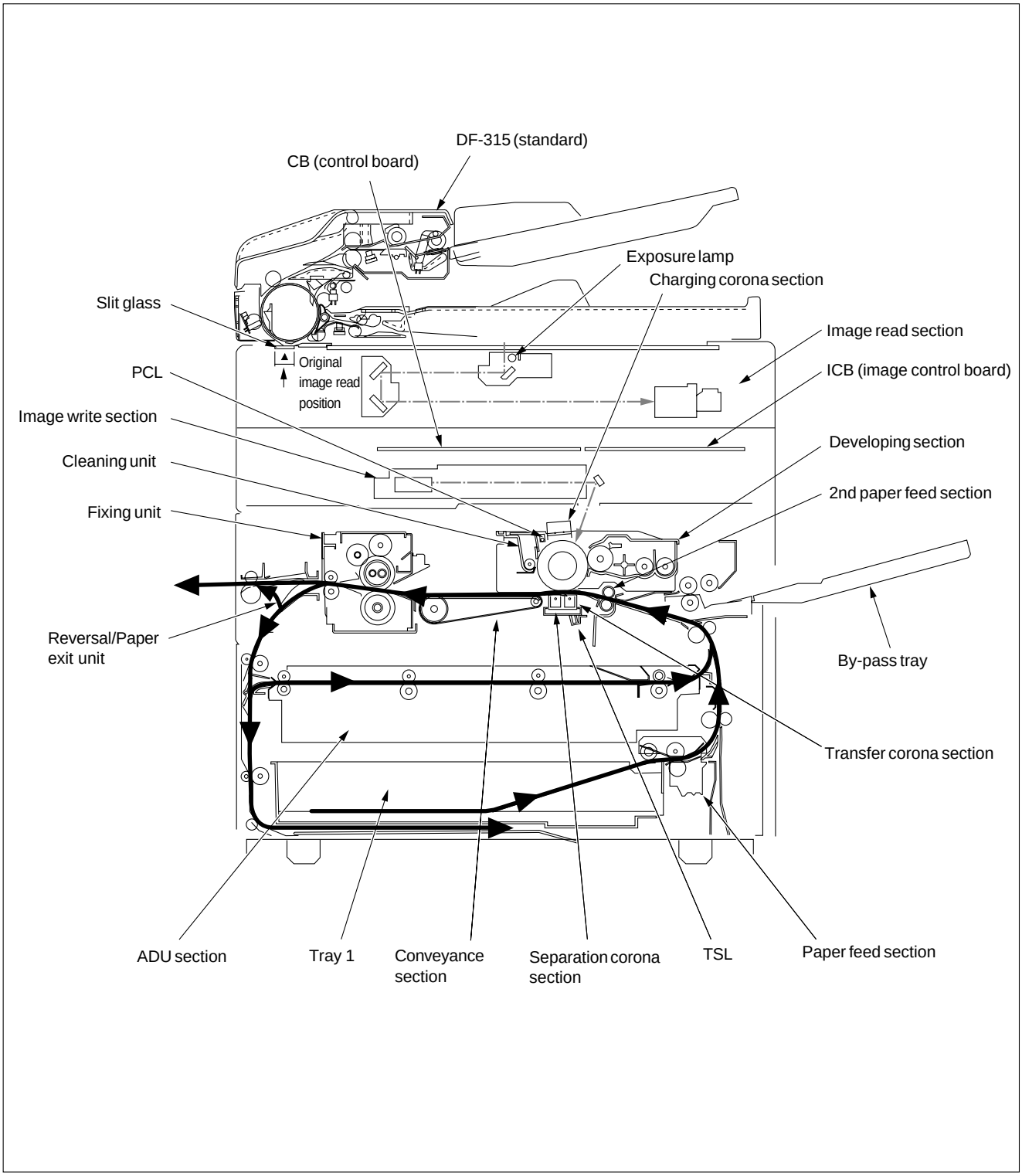
Developer:	Common with Konica 7033/7040
Toner:	Common with Konica 7040
Drum:	Common with Konica 7033/7040 (ϕ60)

8. Environmental conditions

Temperature:	50°C to 86°C
Humidity:	10% to 80%RH

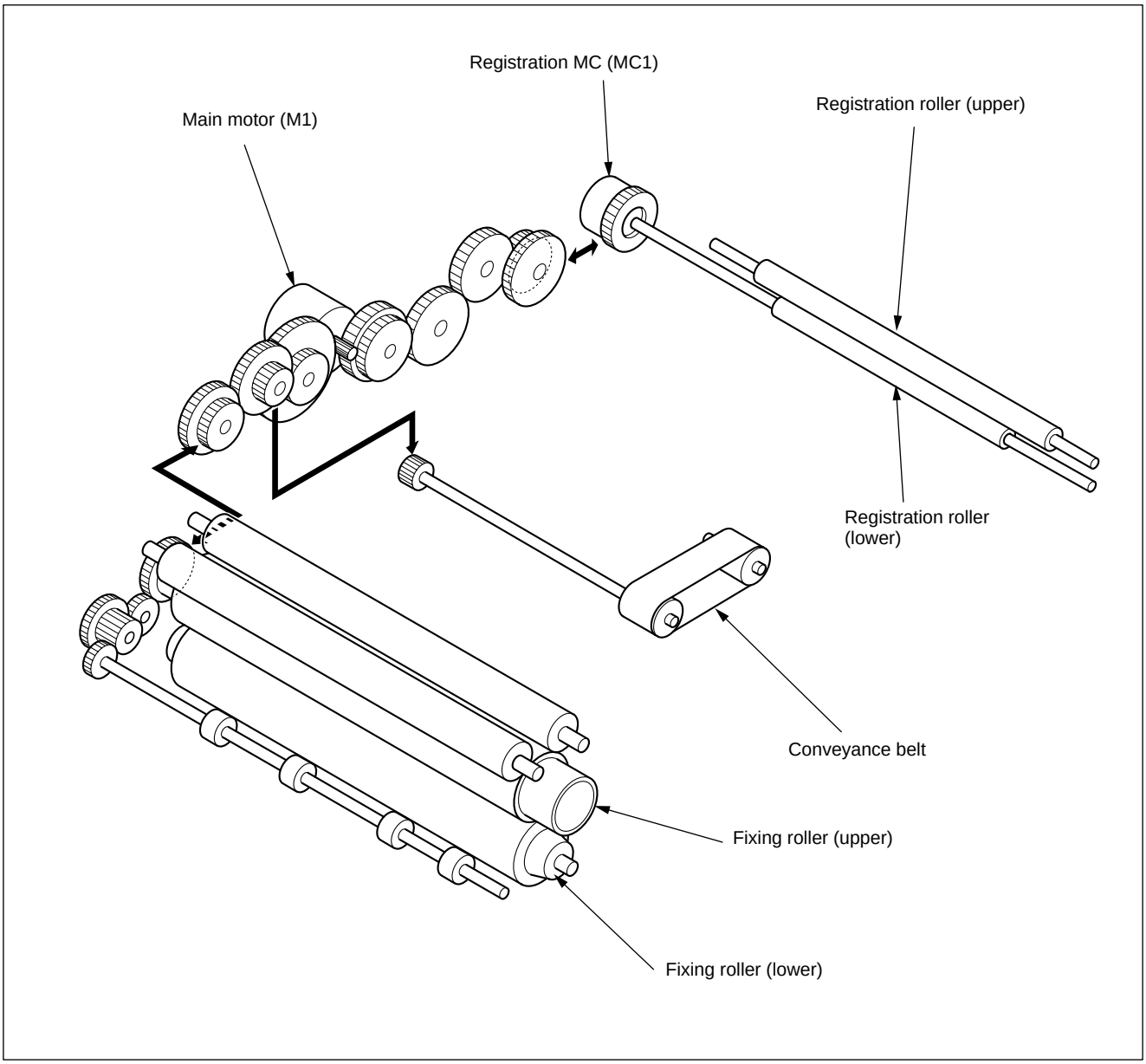
Note: Specifications are subject to change without notice.

CENTER CROSS-SECTIONAL VIEW

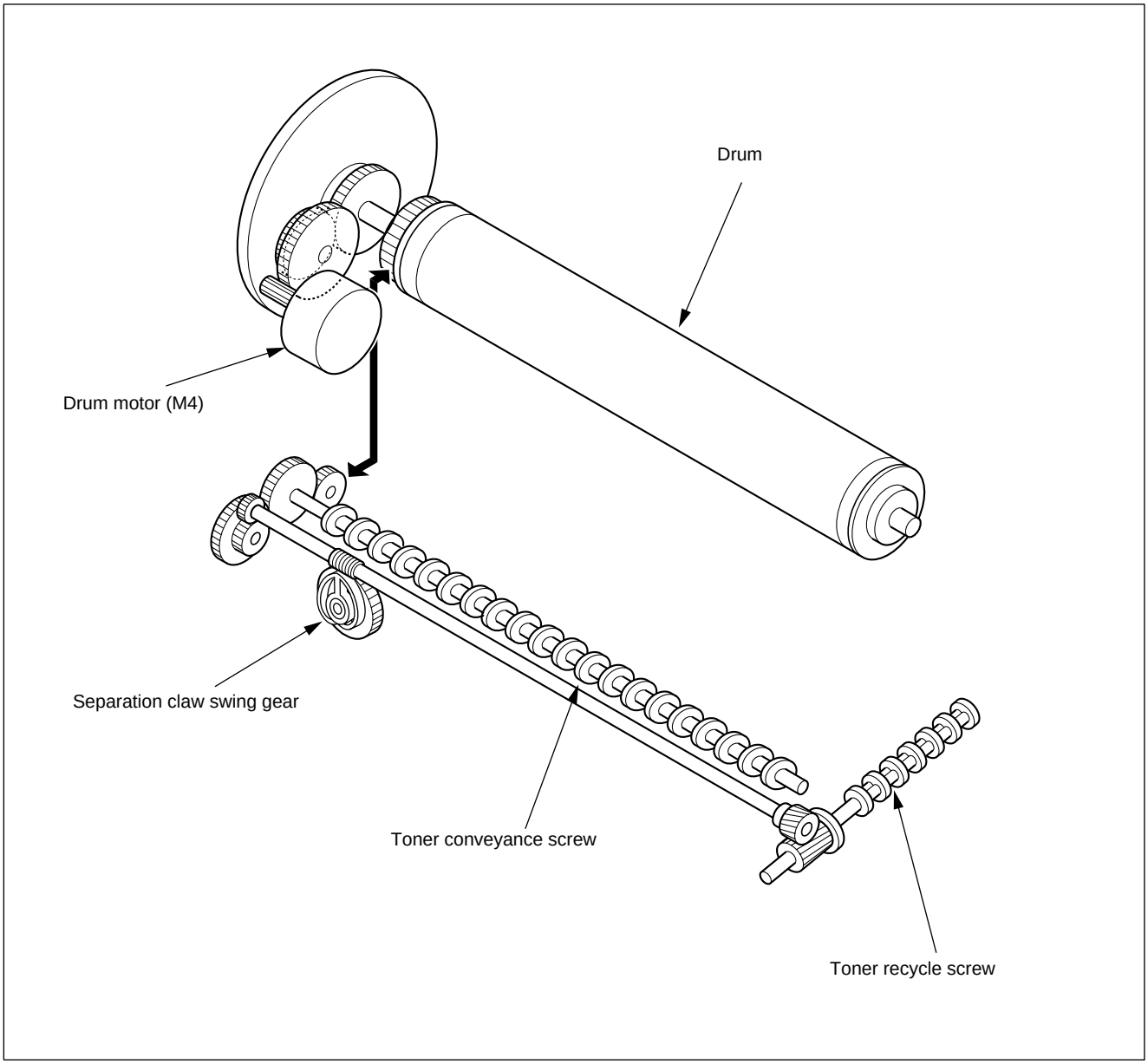


DRIVE SYSTEM DIAGRAM

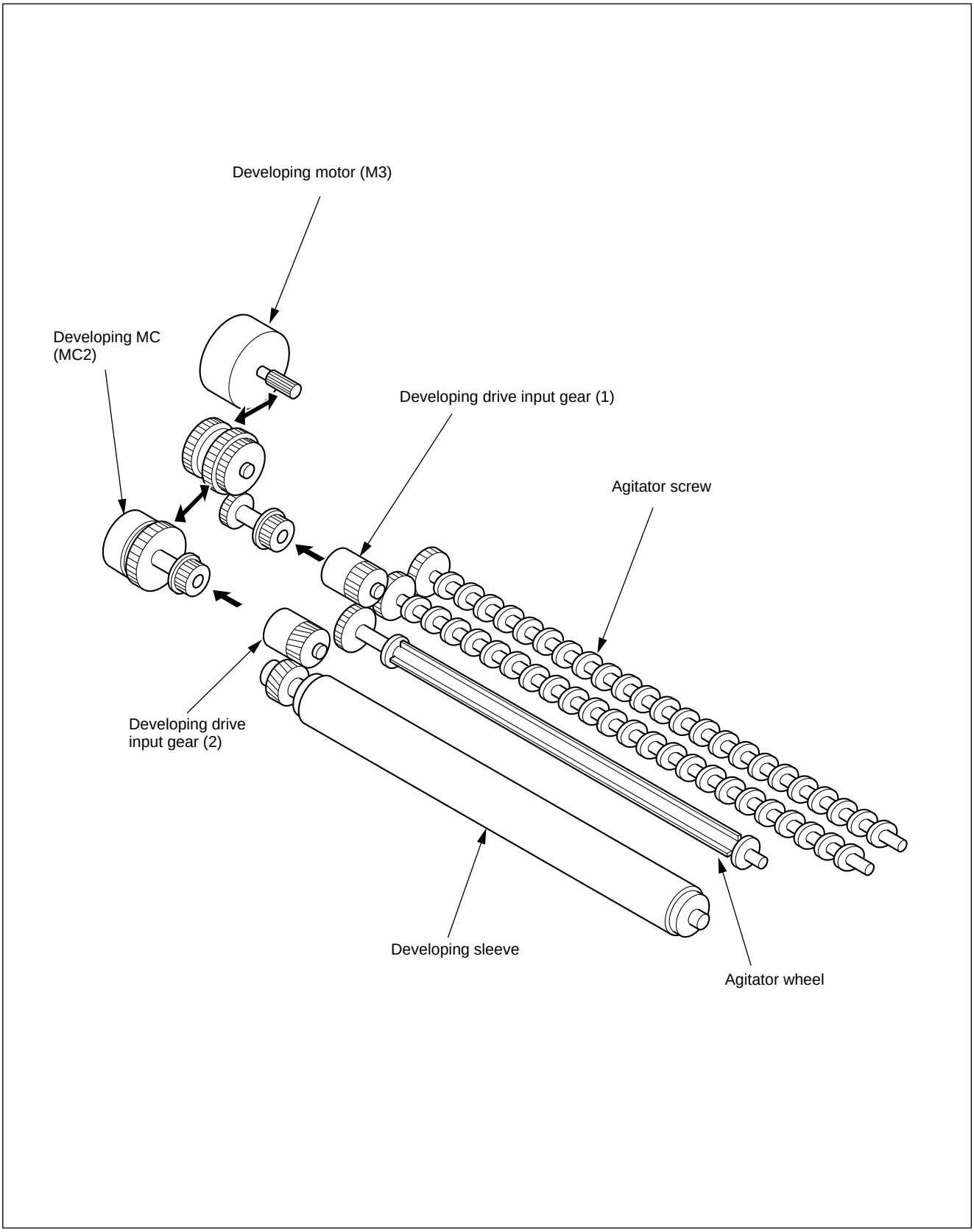
[1] Main Drive



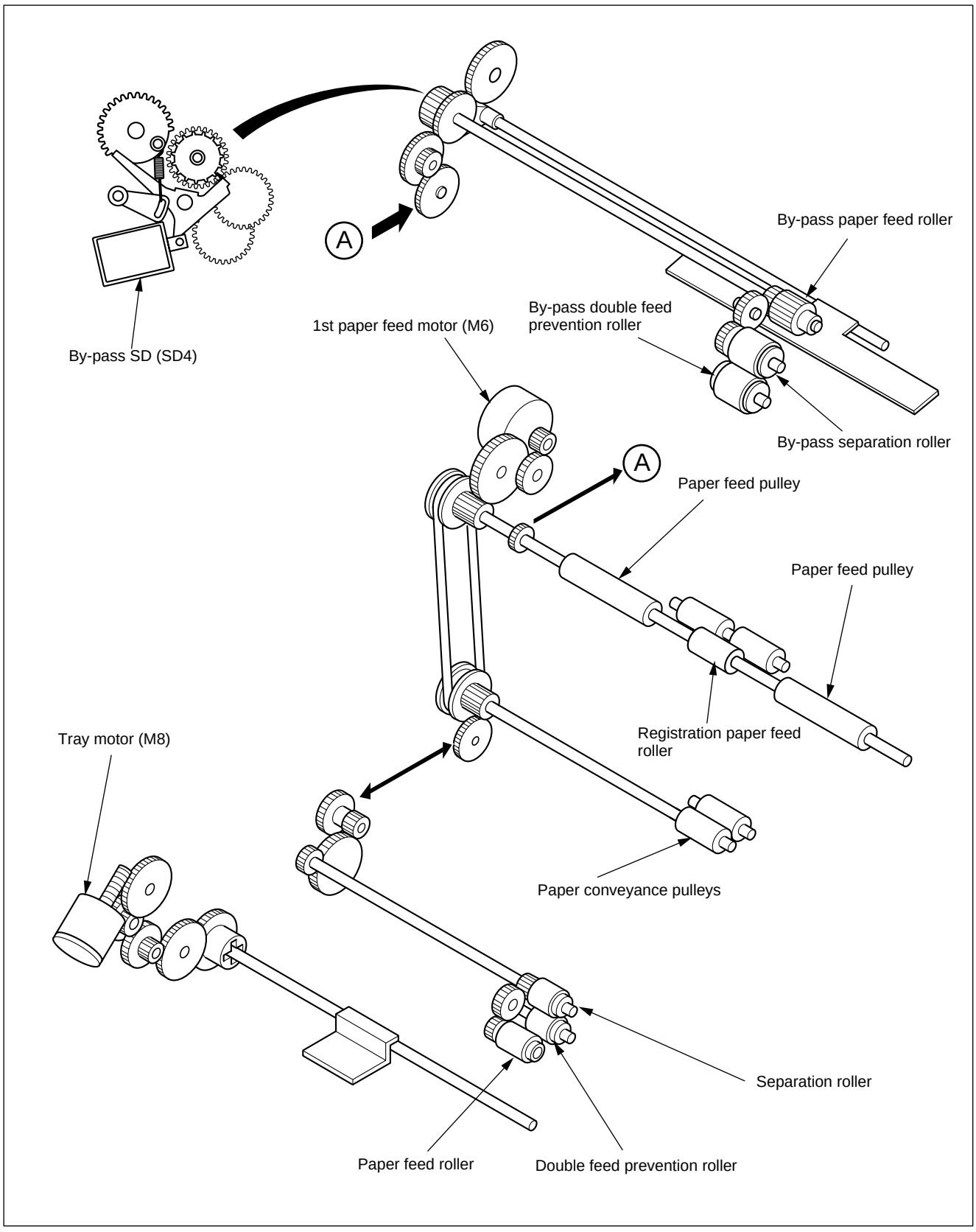
[2] Drum / Toner Recycle Drive



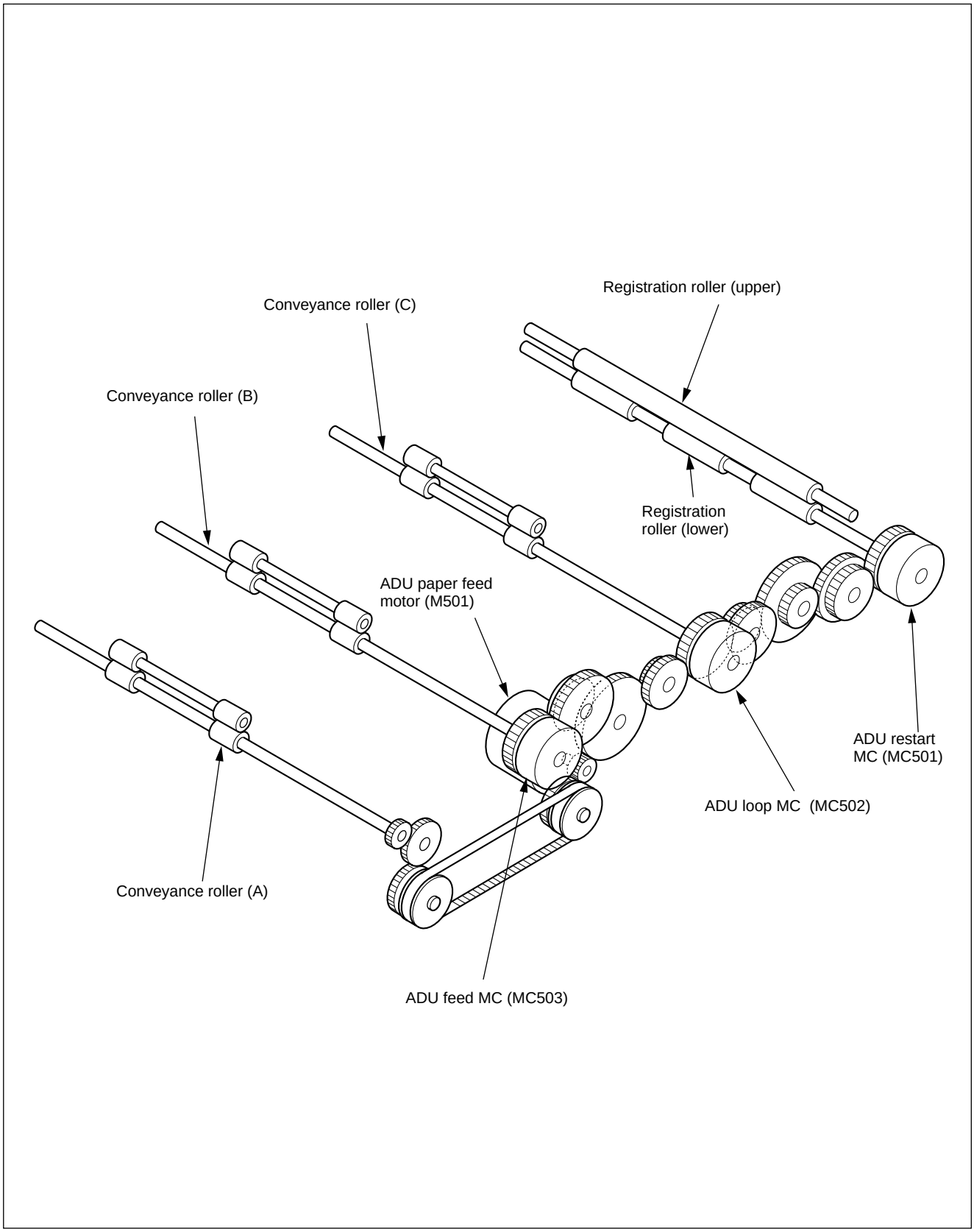
[3] Developing Drive



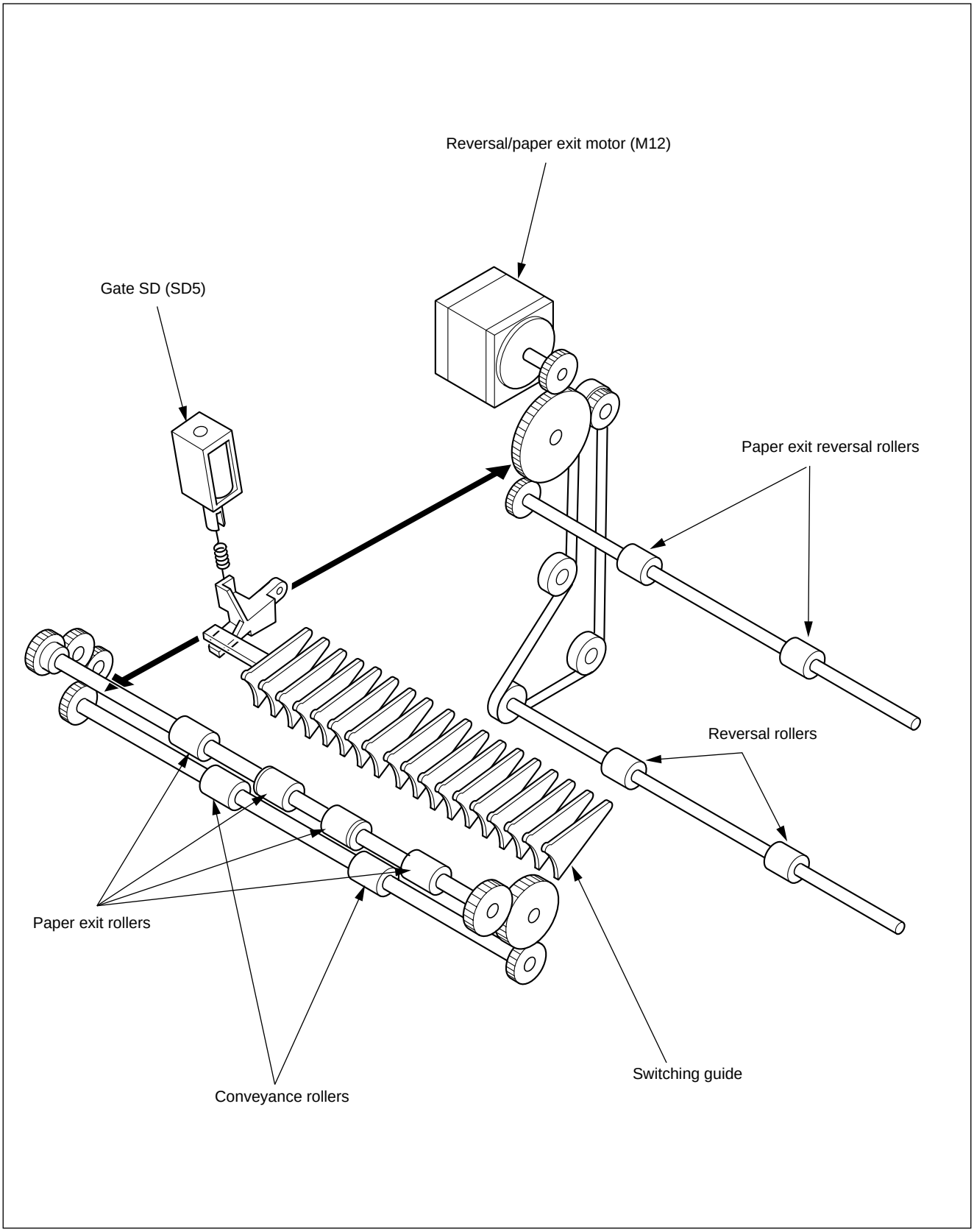
[4] By-pass Paper Feed / 1st Paper Feed Drive



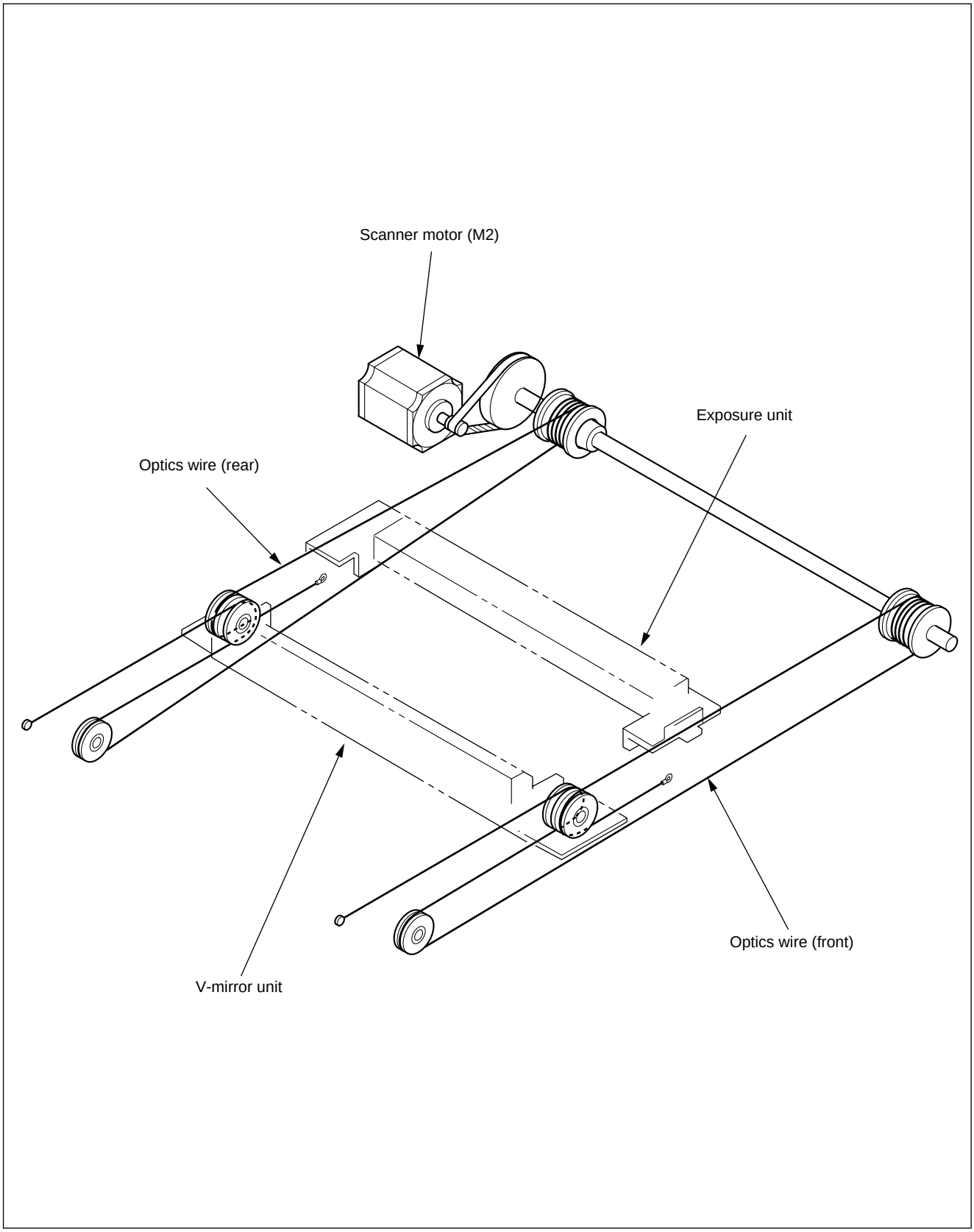
[5] ADU Drive


Registration roller (upper)
Conveyance roller (C)
Conveyance roller (B)
Registration roller (lower)
ADU paper feed motor (M501)
ADU restart MC (MC501)
ADU loop MC (MC502)
Conveyance roller (A)
ADU feed MC (MC503)

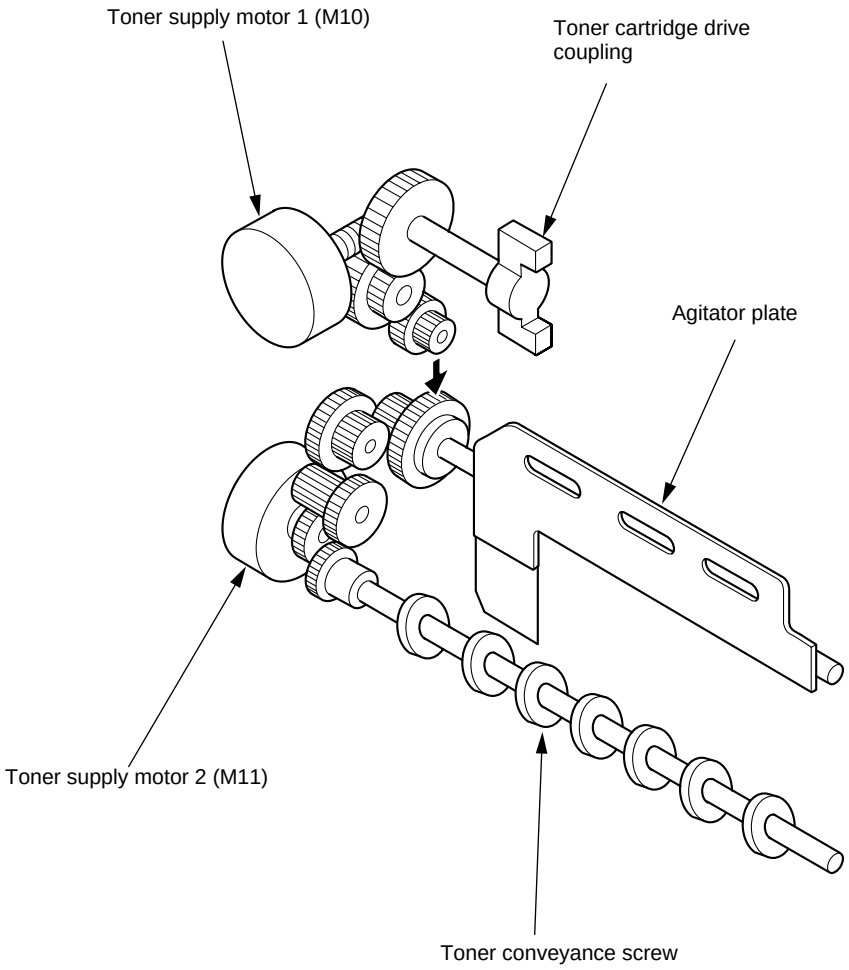
[6] Reversal / Paper Exit Drive



[7] Read Unit Drive



[8] Toner Supply Drive

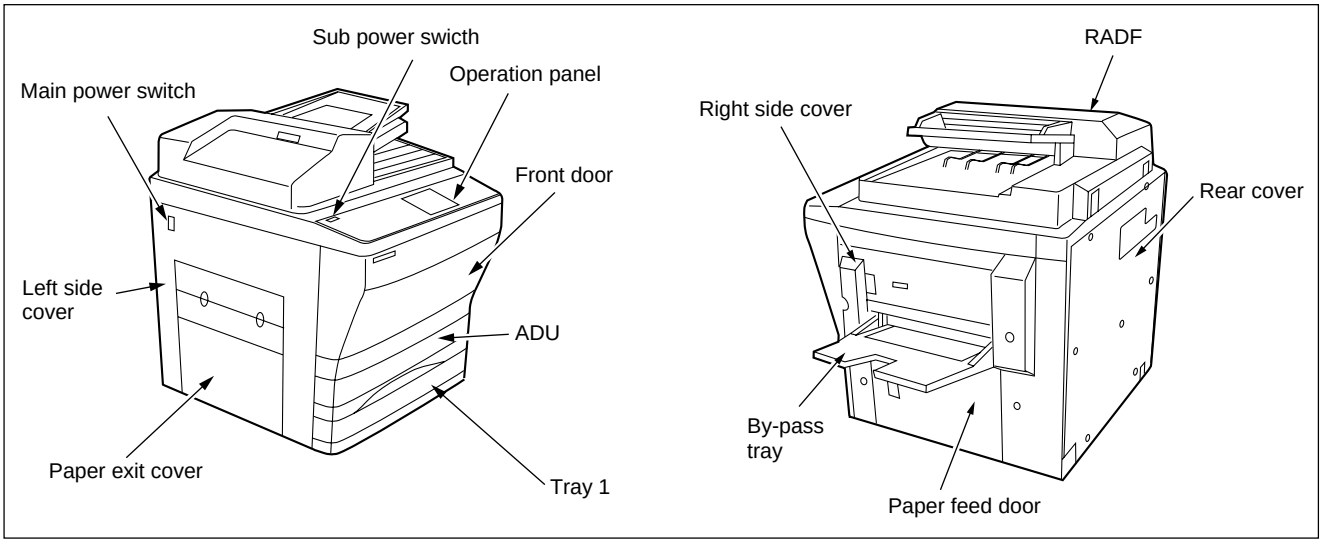


2

UNIT EXPLANATION

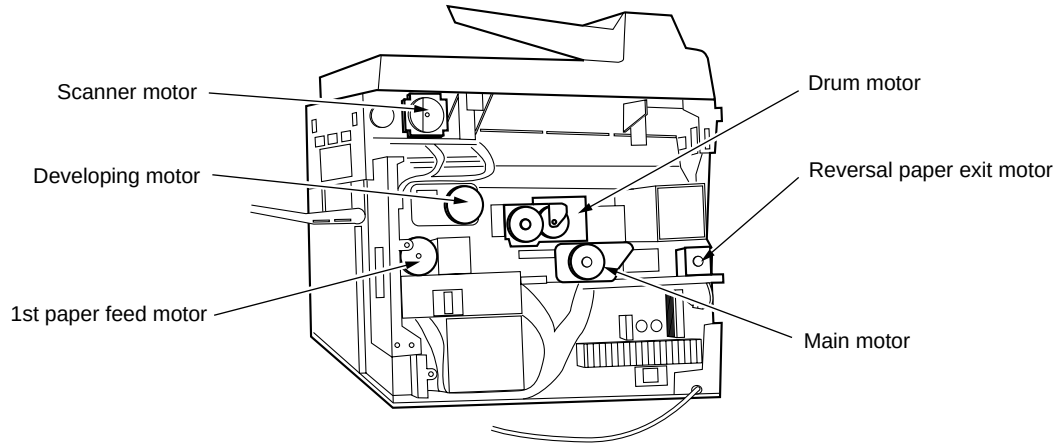
EXTERNAL SECTION

[1] Composition



DRIVE SECTION

[1] Composition



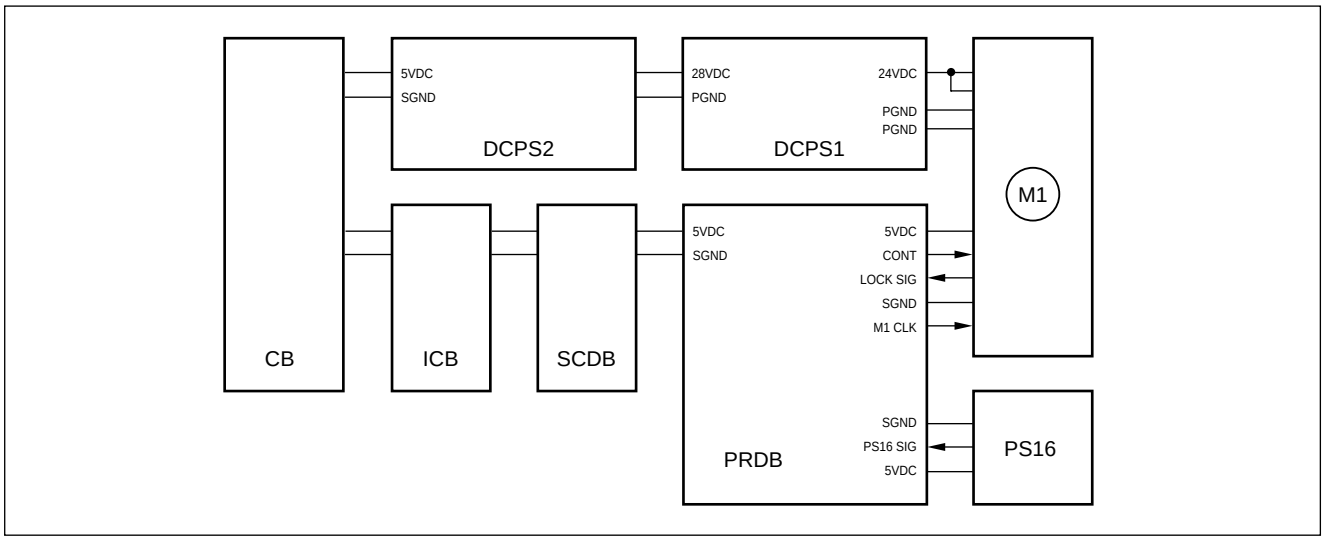
[2] Mechanisms

Mechanisms	Methods
Drum drive *1	Gear drive
Developing drive *1	Gear drive
1st paper feed drive	Timing belt + gear drive
2nd paper feed, convey-ance and fixing drive	Gear drive
ADU drive	Timing belt + gear drive
Reversal/paper exit drive	Timing belt + gear drive

***1:** Separation of the different parts of the drive system

The drum and developing agitator of this machine are driven by separate motors in order to improve the serviceability of the drum unit and also to improve the developing performance.

[3] M1 (Main) Control



M1 (main) is controlled by the PRDB (printer drive board).

1. Operation

M1 is a 24 V drive DC motor which drives the conveyance section, 2nd paper feed section, fixing section and conveyance belt. M1 is PLL-controlled by feedback signals from a speed sensor installed inside M1 itself, maintaining it at a constant speed.
M1 goes ON after the specified time from when the Start print button is pressed, and goes OFF again after the specified time from PS16 (registration) going OFF at the final copy exit.

2. Signals

a. Input signals

(1) LOCK SIG (M1 to PRDB)
M1 rotational status detection signal
This signal becomes [L] when M1 reaches the set speed.

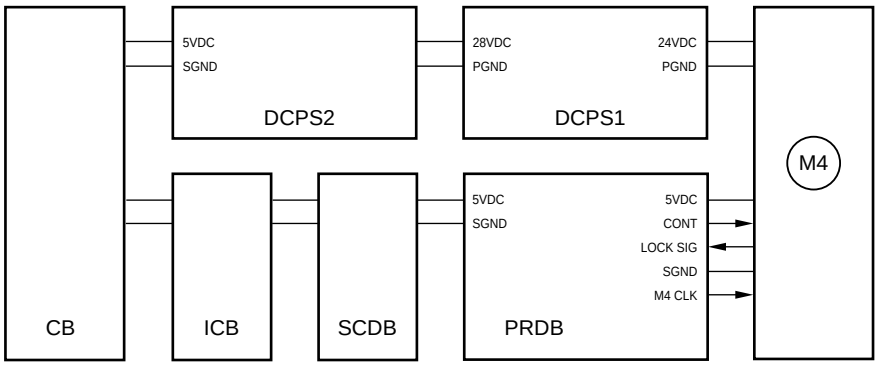
(2) PS16 SIG (PS16 to PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

(1) CONT (PRDB to M1)
M1 drive control signal
[L]: M1 ON
[H]: M1 OFF

(2) M1 CLK (PRDB to M1)
Reference clock signal for controlling the speed of M1

[4] M4 (Drum) Control



M4 (drum) is controlled by the PRDB (printer drive board).

1. Operation

M4 is a 24 V drive DC motor which drives the drum, toner conveyance screw, toner recycle screw and separation claw swing section.

M4 is PLL-controlled by feedback signal from a speed sensor installed inside M4 itself, maintaining it at a constant speed.

M4 goes ON when the Start button is pressed, and goes OFF again when the final copy has been exited.

2. Signals

a. Input signal

(1) LOCK SIG (M4 to PRDB)
M4 rotational status detection signal
This signal becomes [L] when M4 reaches the set speed.

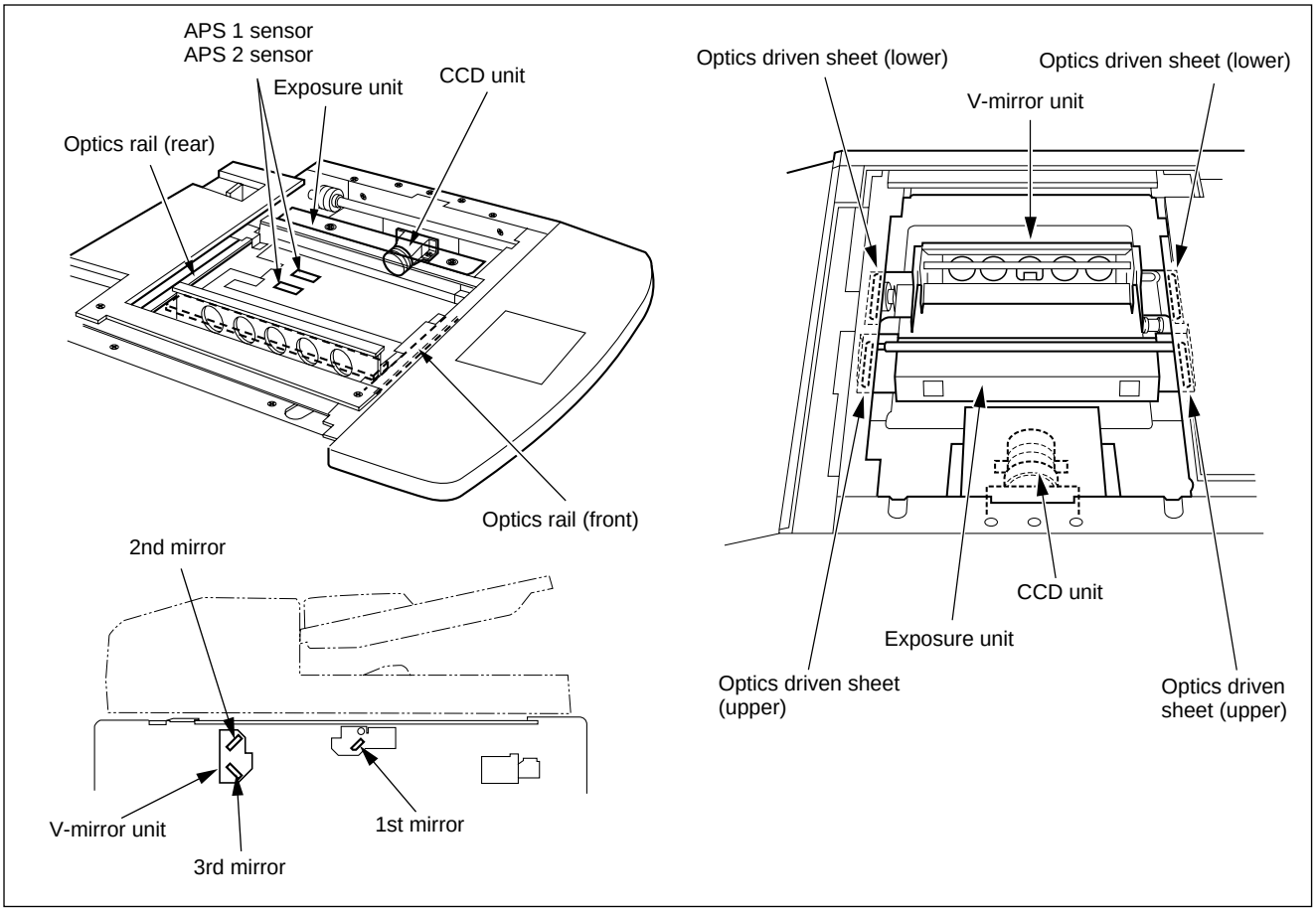
b. Output signals

(1) CONT (PRDB to M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(2) M4 CLK (PRDB to M4)
Reference clock signal for controlling the speed of M4

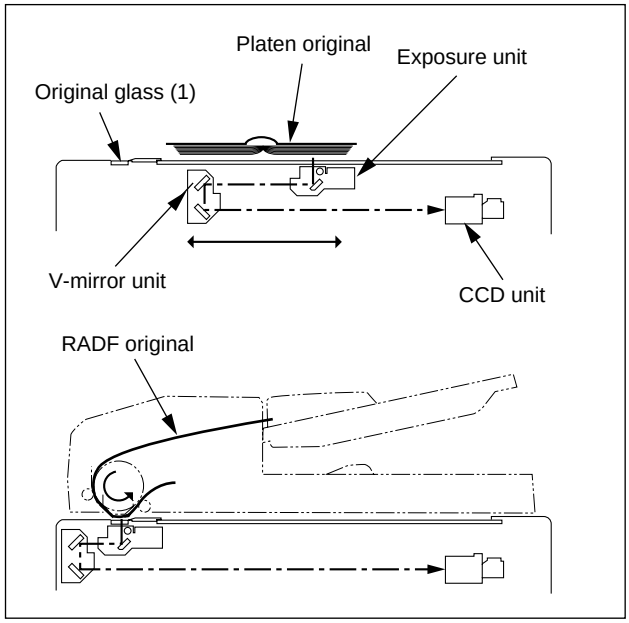
READ SECTION

[1] Composition



[2] Mechanisms

Mechanisms	Methods
Light source	Xenon lamp
Exposure	Slit exposure
Scanning *1	Platen original scanning: 1st, 2nd and 3rd mirror shift RADF original scanning: Fixed light source / Original moving
Lamp power supply	Lamp cord
Cooling of optics	Cooling of intake air using a fan

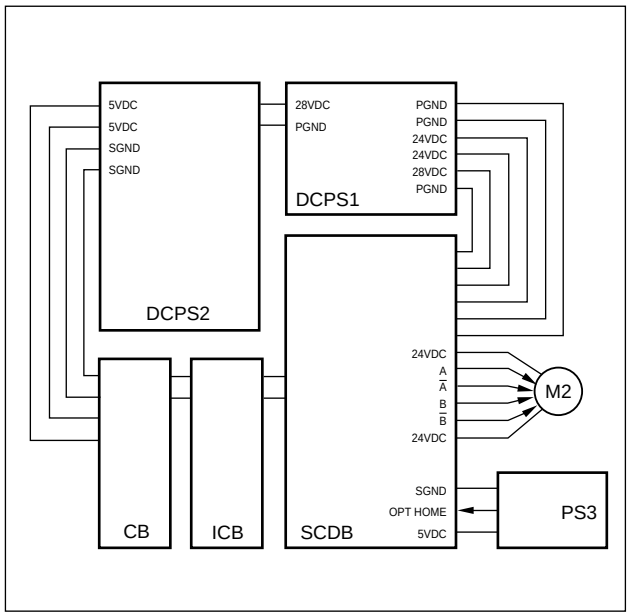


***1:** Platen original scanning and RADF original scanning

a. An original on the original glass is read while moving the exposure unit and V mirror unit.

b. When reading a RADF original, the exposure unit and V mirror unit shift to under the original glass (1). Original reading takes place with the original passing over the stationary exposure unit.

[3] M2 (Scanner) Control



M2 (scanner) is driven by the SCDB (scanner drive board), and is controlled by the ICB (image control board).
Related signal is PS3 (optics HP).

1. Operation

a. Operation of M2

M2 is a stepping motor which drives the exposure unit. It rotates in the forward or reverse direction and also changes speed according to the particular scanning control operation.

The position of the exposure unit is controlled and monitored by PS3 alone. The drive period and direction of rotation of M2 are controlled by the number of count pulses from when PS3 goes ON or OFF.

The ICB continuously monitor the state of motion of M2. It acquires the control timing related to paper feed from the number of drive count pulses.

The ICB continuously monitors the motion of M2. It acquires the control timing related to paper feed from the number of drive count pulses.

b. Scanning speed of the exposure unit

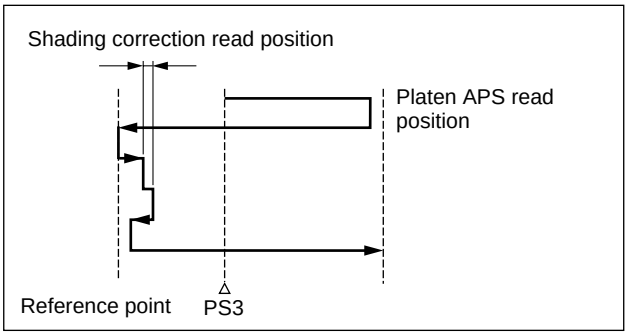
Scanning speed

Magnification	Scanning speed
Forward	210 mm/sec (1:1)
Return	862 mm/sec (Max.)

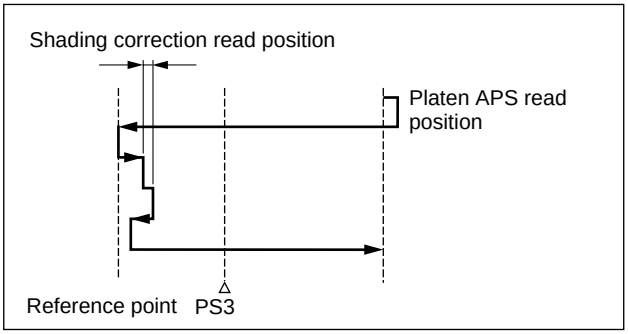
c. Initial operation when power is turned ON

When SW2 (sub power) is turned ON, the exposure unit performs a home position search. The home position search operation differs depending upon whether PS3 is ON or OFF. After the home position search, the exposure unit waits in the platen mode APS read position.

(1) When PS3 is ON



(2) When PS3 is OFF



d. Shading correction read operation

The white reference plate is glued at the back of the original glass and the shading correction is carried out when the SW2 is turned on and every scanning job.

e. Exposure scan mode

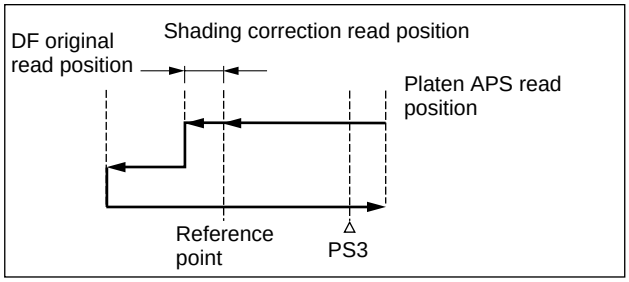
There are two exposure scanning modes, a platen mode and a DF mode.

In the platen mode, the exposure unit scans and reads the original in the same way as in a conventional copying machine. In the DF mode, however, the exposure unit remains fixed in the specified position, and instead the RADF conveys the original, causing it to be read.

f. Scanning operation during DF mode

The read position in the DF mode is on the paper exit side of PS3 (optics HP). While the exposure unit is moving from the standby position (platen APS read position) to the DF read position, the shading correction read operation takes place.

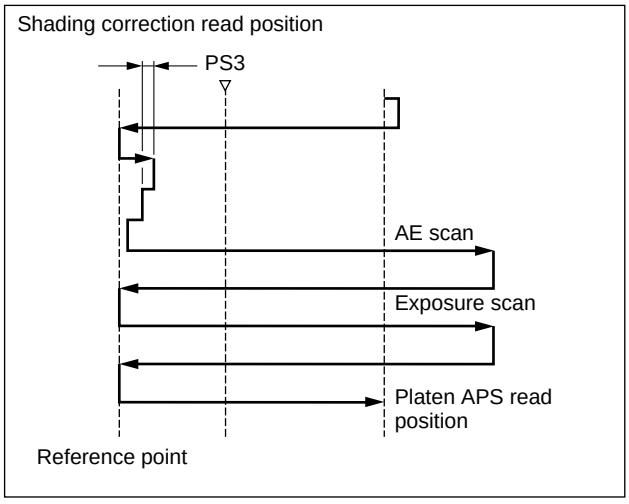
Upon reaching the DF read position, the exposure unit remains there until the original has been read, upon completion of reading, then once again moves to the platen APS read position and goes into a standby status.



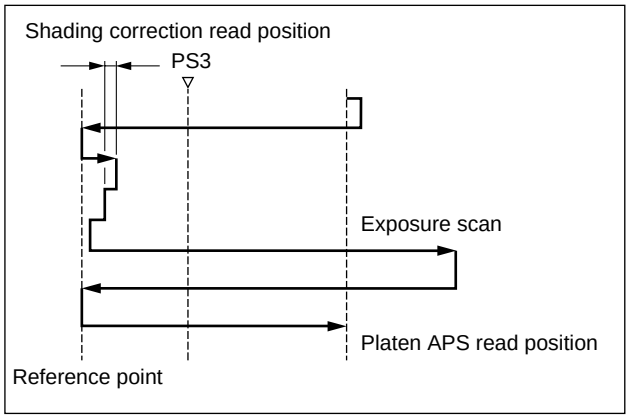
g. Scanning operation during platen copy mode

In the platen mode, the motion of the exposure unit differs depending upon whether the copy density mode is set to AE or Manual. In both cases, a shading correction read operation takes place before the exposure scanning operation starts. After completion of the exposure scanning, then the exposure unit moves to the APS read position and goes into a standby status.

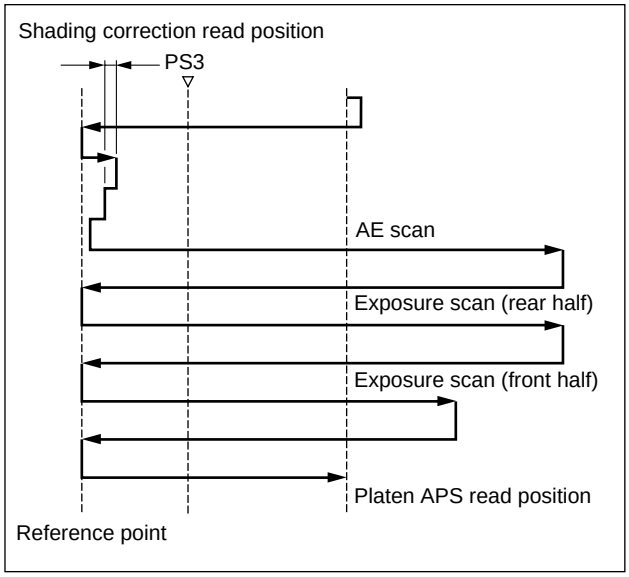
(1) AE mode



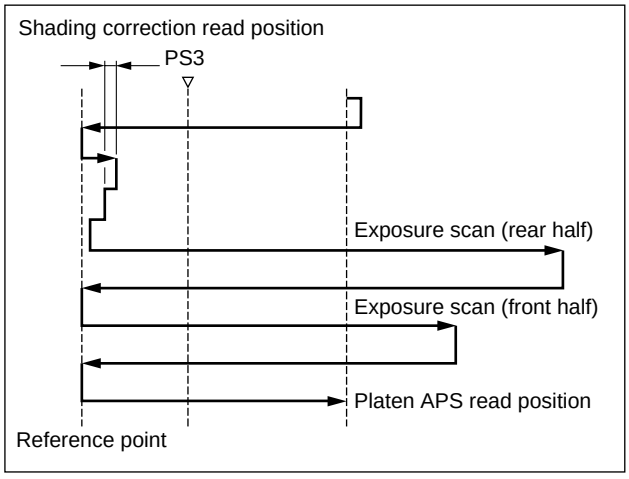
(2) When manual density has been selected



(3) Booklet mode (Output 1 to N, AE mode)



(4) Booklet mode (Output 1 to N, When manual density has been selected)



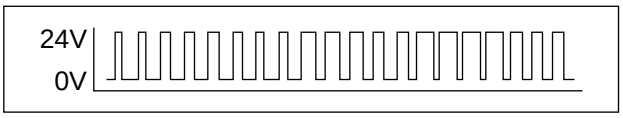
2. Signals

a. Input signal

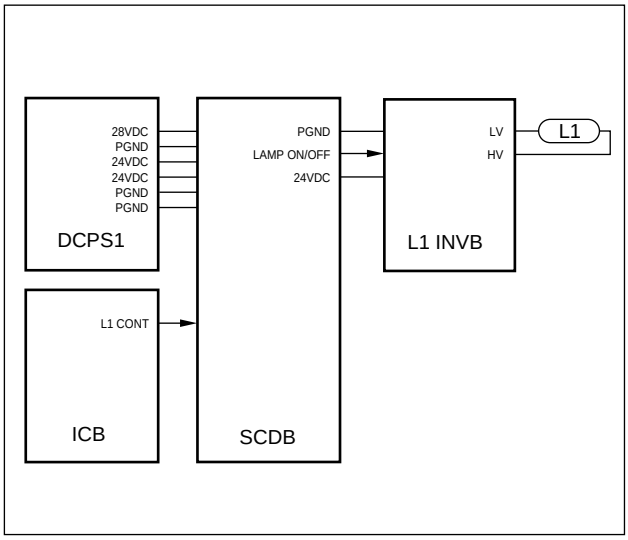
(1) OPT HOME (PS3 to SCDB to ICB)
Exposure unit home position detection signal
[L]: Exposure unit is in the home position.
[H]: Exposure unit is not in the home position.

b. Output signal

(1) A, $\overline{A}$, B, $\overline{B}$ (SCDB to M2)
M2 (scanner) ON/OFF drive signal



[4] Exposure Control



Power is supplied to L1 (exposure lamp) from the L1 INVB (L1 inverter) and is controlled by the ICB (image control board) via the SCDB (scanner drive board).

1. Operation

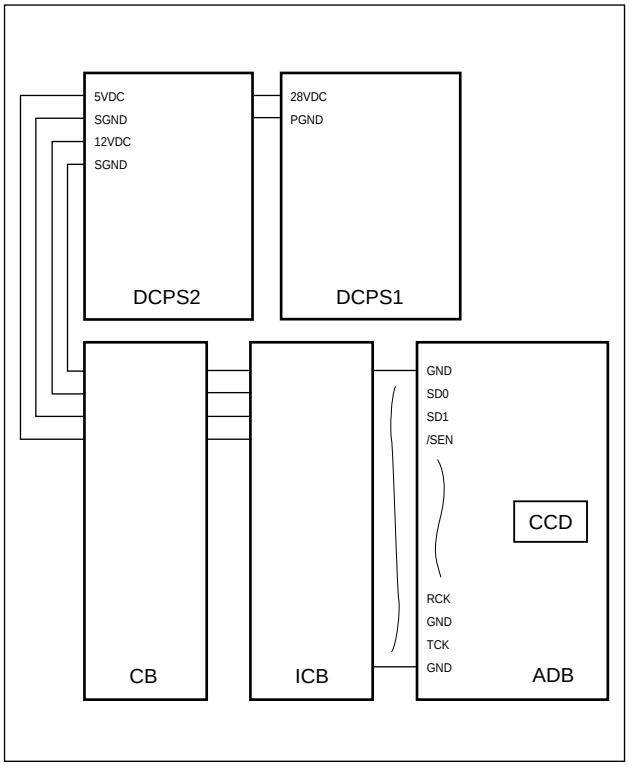
L1 is a xenon lamp which is driven by an inverter circuit.
A xenon lamp provides a stable light intensity and also generates relatively little heat, hence it does not require a light intensity control circuit that is used in conventional copying machines, and also protective control that is normally required due to heat generation from the lamp is no longer used.

2. Signals

a. Output signal

(1) LAMP ON/OFF (ICB to SCDB to L1 INVB)
L1 ON/OFF control signal
[L]: L1 ON
[H]: L1 OFF

[5] Original Read Control



The original is read by the CCD sensor installed on the ADB (A/D converter board).

1. Operation

The light from the exposure lamp reflects back from the original, passes through a lens, and hits the CCD sensor. The CCD sensor generates an anolog electrical signal corresponding to the light intensity. The ADB then converts this signal into a digital signal.

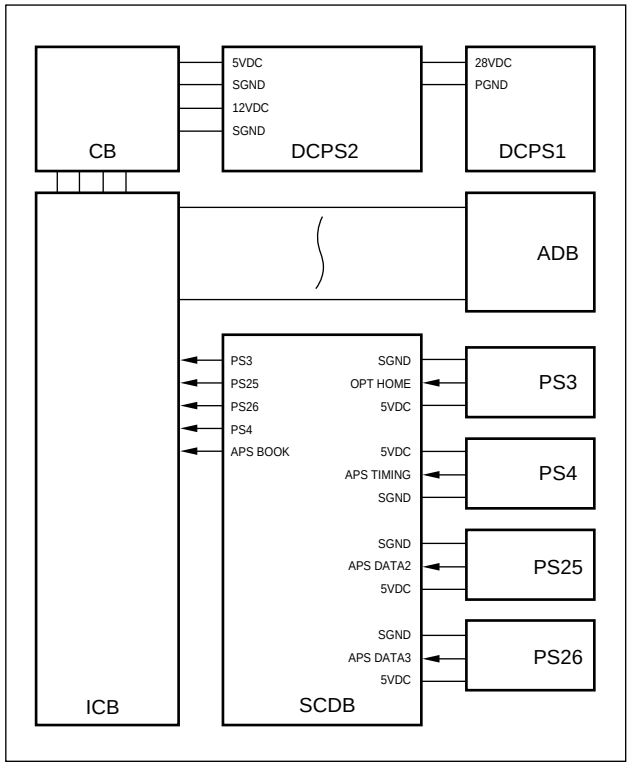
a. Original read operation

The original read timing is as follows.

(1) During a platen copy operation
PS3 (optics HP) goes OFF after the specified time from when the Start button is pressed, and then the exposure unit moves 2 mm to the paper feed side.

(2) During a DF copy operation
After the specified time from the ON of PS308 (original feed detect) by original leading edge.

[6] APS Control



APS takes place as a result of the signals read by the APS sensors and CCD sensor being sent to the ICB (image control board) when the RADF is opened and closed.

Related signals are PS3, PS4 (APS timing) and PS301 (DF open/close detect).

1. Operation

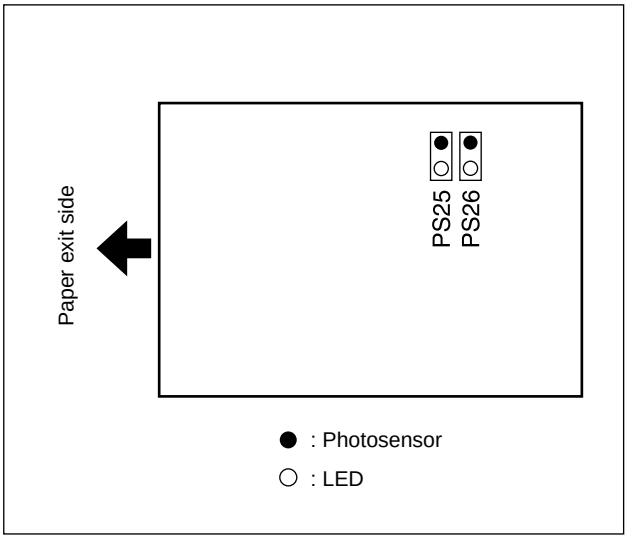
a. APS detection operation

The APS detection operation differs depending upon whether the platen mode or DF mode is used.

(1) During a DF copy operation
An original size is detected by ON or OFF of PS302 (original size detect 1) and PS303 (original size detect 2) on the paper feed tray of RADF, and resistance value of VR301 (original size detect).

(2) During a platen copy operation
APS detection is used to detect the original size. This is done by combining the ON/OFF signals from PS25 (APS 1) and PS26 (APS 2) with the detection signal from the CCD sensor mounted on ADB.

PS25 (APS 1) and PS26 (APS 2) detect the original size in the sub-scanning direction, and the CCD sensor detects the original size in the main scanning direction.
During APS detection, when L1 (exposure lamp) lights, gradations of light intensity occur in the main scanning direction due to the presence of an original. The CCD sensor detects these gradations of light intensity along one line, and the ICB (image control board) judges the size of the original in the main scanning direction from the positional relationship between the two points where the light intensity level switches from black generated by a sky shot to white generated by the edge of the original.
Close RADF, then detection of the original size in the main scanning direction takes place once again at the instant PS301 (DF open/close detect) goes ON, and the original size is confirmed.
PS25 and PS26 each consist of an LED and a photosensor. Light emitted from each LED is reflected off the original, and received by the photosensor, thus enabling the size of the original to be detected.
The PS25 and PS26 consist of LEDs and photosensors. APS detection takes place as a result of the light emitted from each LED being reflected off the original and received by the photosensor.



The relation between each sensor and the paper size is shown below.

Sensor / Paper size	PS302 PS25	PS303 PS26
A3	○	○
B4	○	○
A4R	○	×
B5R	×	×
A4	×	×
B5	×	×

○ : Paper is detected (ON).

× : Paper is not detected (OFF).

b. APS detection timing

The APS detection timing differs depending upon whether the platen mode or the DF mode is used.

(1) During a DF copy operation
When either the DF mode is selected or an original is placed in the RADF paper feed tray, the original size is detected by PS302 (original size detect 1), PS303 (original size detect 2) and VR301 (original size detect).

(2) During a platen copy operation
- When PS4 (APS timing) is ON and PS301 is ON
- If RADF is open, the original size is detected when the Start button is pressed.

2. Signals

a. Input signals

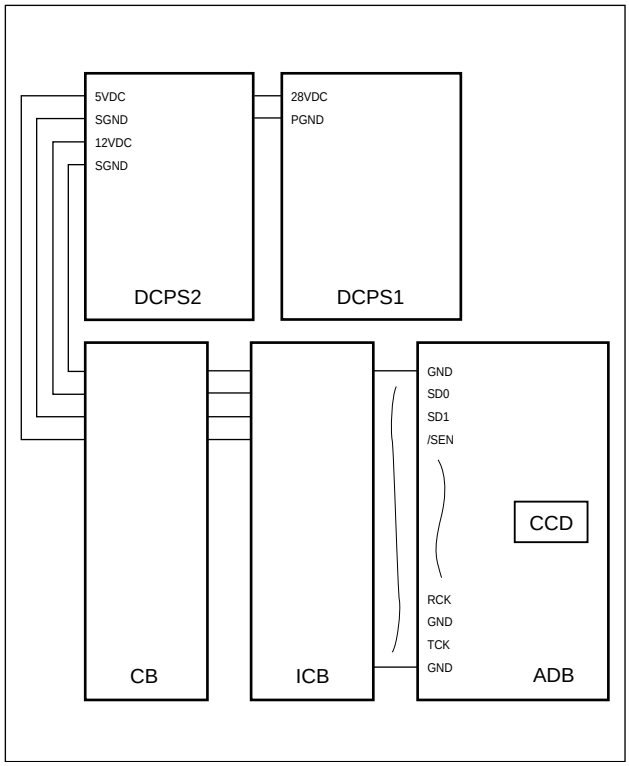
(1) OPT HOME (PS3 to SCDB to ICB)
Exposure unit home position detection signal
[L]: Exposure unit is in the home position.
[H]: Exposure unit is not in the home position.

(2) APS TIMING (PS4 to SCDB to ICB)
RADF opening/closing detection signal
Activates or deactivates the APS function at a platen copy operation.
[L]: OFF (APS function deactivated)
[H]: ON (APS function activated)

(3) APS DATA 2 (PS25 to SCDB to ICB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

(4) APS DATA 3 (PS26 to SCDB to ICB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

[7] AES Control



When an AE scanning takes place, the CCD sensor installed on the ADB (A/D converter board) reads the original density, and the ICB (image control board) performs processing corresponding to the read results and selects the optimum γ correction curve for the original reproduction. This operation is called AE control. The selection of this γ correction curve is done by the CPU on the ICB.

1. Operation

a. AES detection operation

(1) During a platen copy operation
When the Start button is pressed, an AE scanning takes place, and the density of the original is read over the following range.

<AES sampling range>

1) When RADF is open

Range of non-image area erace mode, or the inside of the area detected by the APS

2) When RADF is closed

- Range of 20 mm inward of the original size detected by the APS
- If the original size cannot be determined by the APS, a range of 20 mm inward of the minimum original size set for the particular shipping destination of the machine.

(2) During a DF copy operation
The image at the leading edge of the original is read by the original feed operation that takes place when the Start button is pressed, and the read data is used to perform density measurement.

<AES sampling range>

1) Main scanning direction

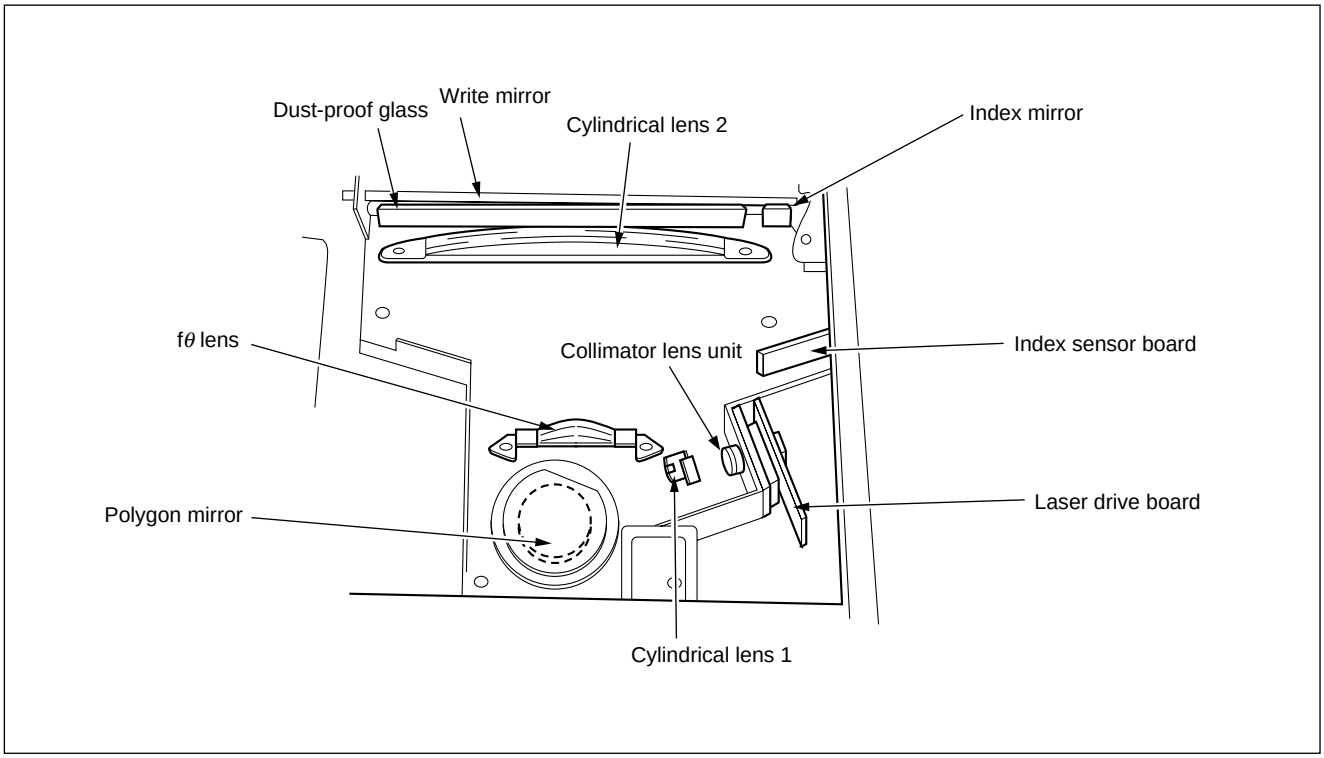
- A range of 20 mm inward of the original size detected by the APS
- If the original size cannot be determined by the APS, a range of 20 mm inward of the minimum original size set for the particular shipping destination of the machine.

2) Sub scanning direction

Range between 1.5 mm and 2.9 mm from the leading edge of the original

WRITE UNIT

[1] Composition

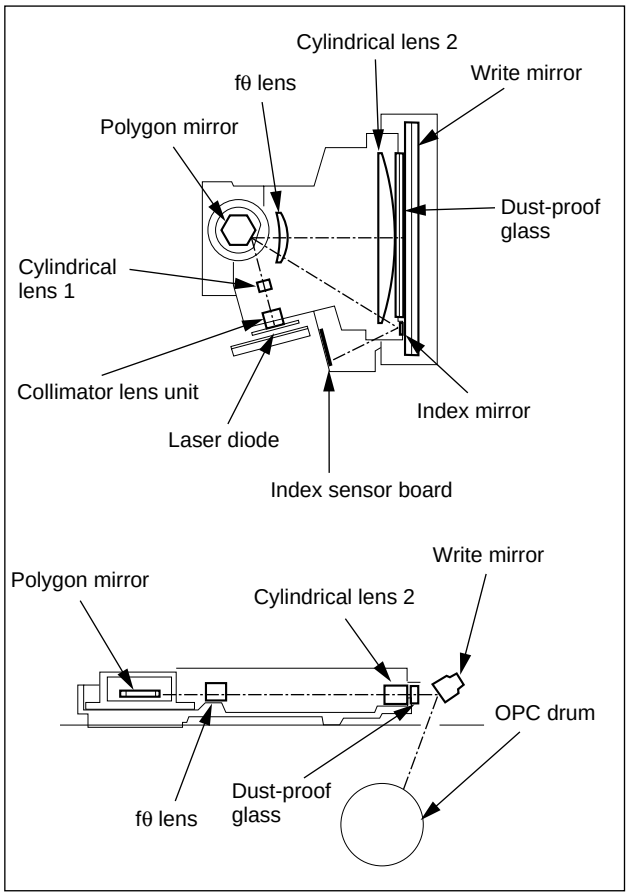


[2] Mechanisms

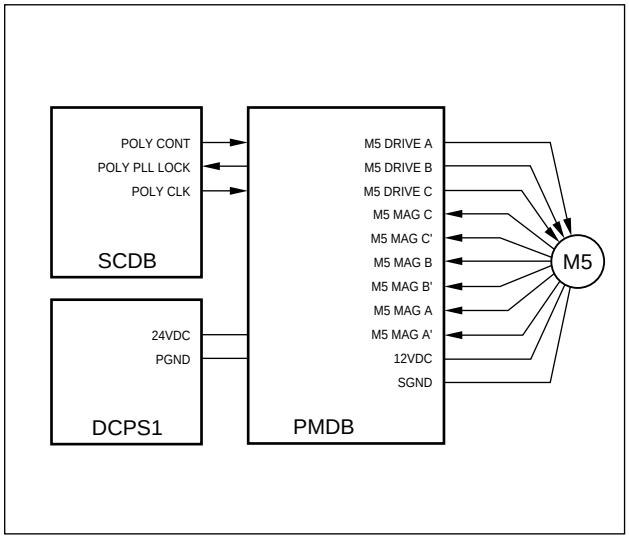
Mechanisms	Methods
Scan *1	Polygon mirror Rotational speed: · 49606.3 rpm
Light source	Laser diode (1) · Output : Max. 5 mW · Wavelength : 780 nm
Positioning	Index sensor

***1:** Path of laser beam

The light output from the semiconductor laser is sent to the OPC drum via the collimator lens, cylindrical lens 1, polygon mirror, fθ lens, cylindrical lens 2, and write mirror.



[3] M5 (Polygon) Control



M5 (polygon) is driven by the PMDB (Polygon motor drive board), and is controlled by the SCDB (scanner drive board).

1. Operation

a. M5 is a 3-phase brushless DC motor which is driven using a 3-phase bipolar method. The current flowing through the windings is switched according to the position of the rotor which is detected by a sensor (magnetic sensor) inside the motor.
This motor rotates the polygon mirror, causing the laser beam from LDB (lazer drive board) to be scanned in the axial direction of the drum. The speed of the motor is maintained constant by PLL control.

b. M5 is powered by 24 VDC. The rotational speed is as follows.

State of the machine	Rotational speed
During copy	49606.3 rpm
During idling	One of the following three speeds can be selected using the “25” mode. • 49606.3 rpm • 25000 rpm * • Stop *

* If the item marked * is selected, the rotational speed of M5 switches over after the lapse of the specified time from the completion of the warm-up or the end of the copy process.

The specified time can be selected using the “25” mode among below.
· 15 sec, 30 sec, 60 sec, 120 sec

2. Signals

a. Input signals

(1) POLY PULL LOCK (PMDB to SCDB)
M5 rotation speed monitoring signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

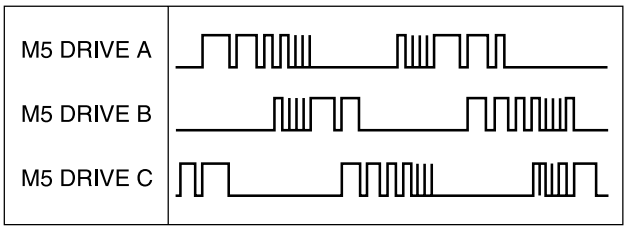
(2) M5 MAG A/A' (M5 to PMDB)
M5 MAG B/B' (M5 to PMDB)
M5 MAG C/C' (M5 to PMDB)
These are output signals from the position sensors (magnetic sensors) installed inside M5. The PMDB detects the position of the rotor of the motor by means of these signals, and switches over the M5 DRIVE A to C output.

b. Output signals

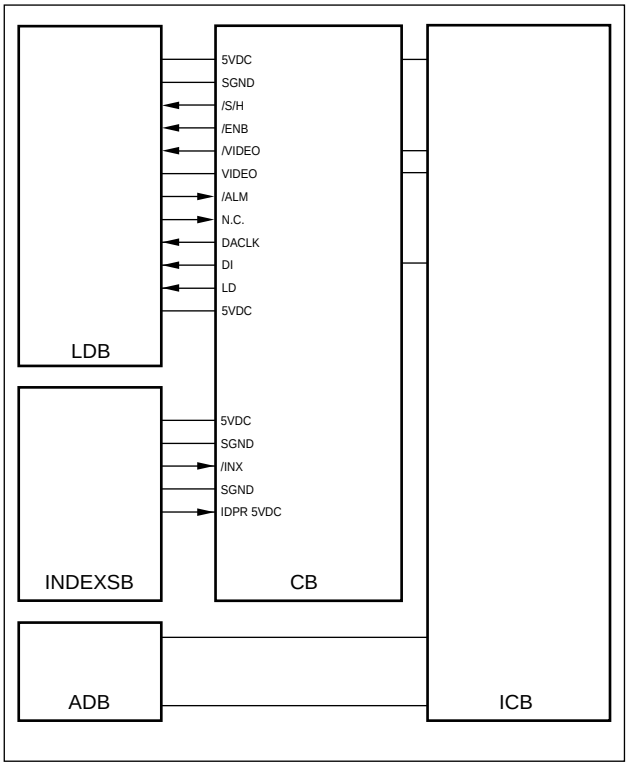
(1) POLY CONT (SCDB to PMDB)
This signal controls the ON/OFF state of M5.
[L]: M5 ON
[H]: M5 OFF

(2) POLY CLK (SCDB to PMDB)
This is a reference clock signal for PLL-controlling M5 in the PMDB.

(3) M5 DRIVE A to C (PMDB to M5)
This is the drive output signal for M5. While M5 is rotating, voltages are output sequentially from M5 DRIVE A to C, and applied to M5.
The voltage from each output that is applied to M5 consists of the pulses shown below. The pulse width of this output changes according to the rotation condition of M5, as shown in the figure, and as a result the RMS value of the voltage applied to M5 changes, causing the speed to be regulated.



[4] Image Write Control



The analog image data from the CCD sensor is A/D-converted and processed by the ADB (A/D converter board). The processed image data is memorized by the CB (control board), then returned to the ICB (image control board) once again and converted into a laser record signal. The laser record signal is transmitted via the CB to the LDB (Laser drive board) by the control signal from the ICB, and output as an optical signal from the laser installed on the LDB. The write start position of the laser record signal is detected by INDEXSB (index sensor board).

1. Operation

a. Image processing

The following processing is carried out by the ICB.

(1) AOC (Automatic Offset Correction)
IC on ADB automatically adjusts analog off set voltage of CCD sensor output.

(2) AGC (Automatic Gain Correction)
When SW2 (sub power) is turned ON, the white reference plate is read, and the amplification of the analog output from the CCD sensor is automatically adjusted so that the resulting level is the upper limit of the A/D converter.

(3) Shading correction
<Implementation timing>
White correction, Black correction
- When SW2 is ON
- Before job

(4) Brightness/density conversion
(5) AES processing
(6) Text/dot pattern judgement
(7) Filtering
(8) Magnification change processing
(9) Copy γ correction
(10) Write density control

b. Write

The ICB sends image data one pixel at a time to LDB in accordance with control signals from the CB.
LDB cause the laser to emit at a time period corresponding to the image data. This laser light is applied to the drum.

(1) MPC (Maximum Power Control)
The ICB instructs the LDB to cause the laser to output the maximum power output value, thus setting the maximum output value. The LDB stores this setting, and maintains the laser light intensity stored by means of the APC (Automatic Power Control) operation.

<MPC timing>

- When SW2 is turned ON.

(2) APC (Automatic Power Control)
The ICB outputs an APC start instruction to the LDB at the following timing, after MPC is set.

<APC timing>

- When PLL lock of M5 (polygon) is detected.

After PLL lock is detected, the LDB automatically monitors the laser drive current one line at a time, and controls it so that the light intensity remains the MPC value.

(3) Write Timing
In this machine, the INX signal from INDEXSB determines the laser write start timing for each scan in the axial direction of the drum.

2. Signals

a. Input signals

(1) INX (INDEXSB to CB to ICB)
Write system index signal

(2) IDPR (INDEXSB to CB to ICB)
5 VDC power monitoring signal for INDEXSB (index sensor board)

(3) ALM (LDB to CB to ICB)
Signal which indicates an abnormality in the laser drive current (APC operation).
[L]: Abnormal
[H]: Normal

b. Output signals

(1) VIDEO (ICB to CB to LDB)
Laser image data signal

(2) DA CLK (ICB to CB to LDB)
Data transfer clock signal for MPC setting value

(3) DI (ICB to CB to LDB)
Data signal of MPC setting value

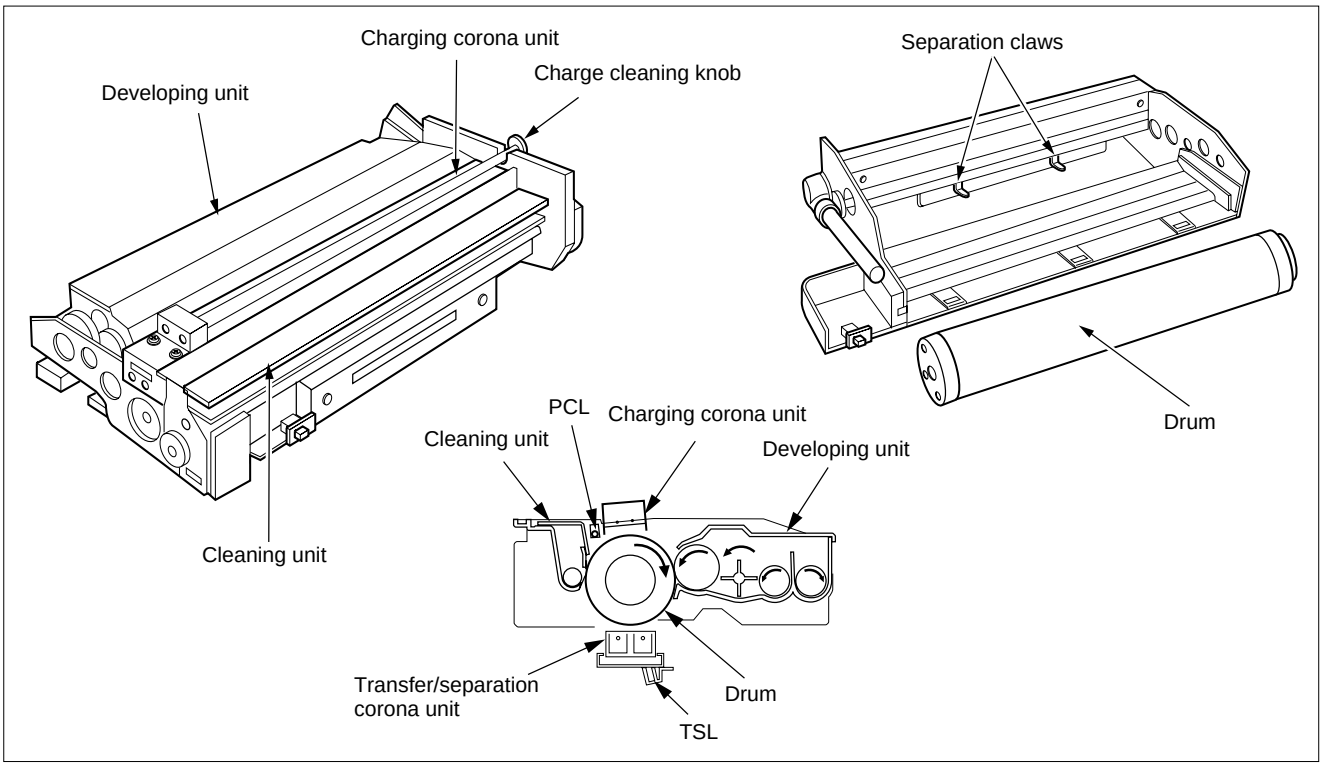
(4) LD (ICB to CB to LDB)
Storage directive signal for MPC setting value

(5) S/H (ICB to CB to LDB)
APC sampling signal for one line scan

(6) ENB (ICB to CB to LDB)
Laser APC function ON/OFF control signal
While this signal is OFF then the laser beam output is prohibited.

DRUM UNIT

[1] Composition

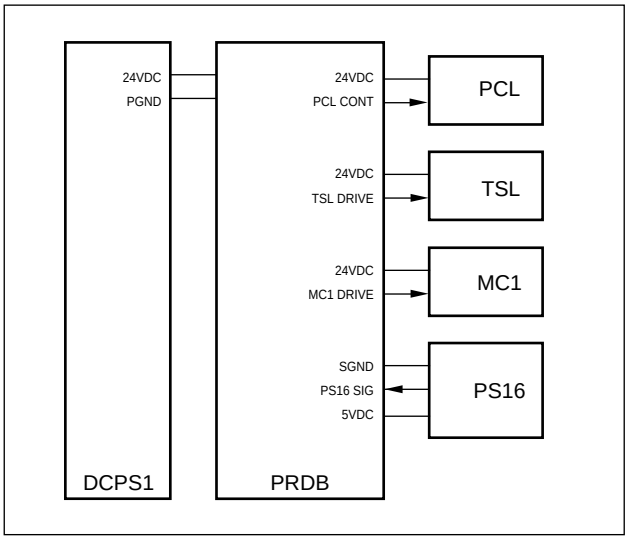


[2] Mechanisms

Mechanisms	Methods
Carriage support	Fixed rail
PCL	LED
Auxiliary separation	Separation claws

The drum unit of this machine is an integral assembly consisting of the drum, and also the charging corona unit, developing unit, cleaning unit, toner recycle unit and the PCL which are installed around the drum.

[3] PCL/TSL Control



The PCL (pre-charging lamp) and TSL (transfer synchronization lamp) consist of LEDs which are controlled by the PRDB (printer drive board).

1. Operation

PCL goes ON after the specified time from when the Start print button is pressed, and goes OFF again after the specified time from the turning OFF of PS16 (registration) upon the final copy exit.
TSL goes ON after the specified time from when MC1 (registration) goes ON, and goes OFF again after the specified time from PS16 going OFF.

2. Signals

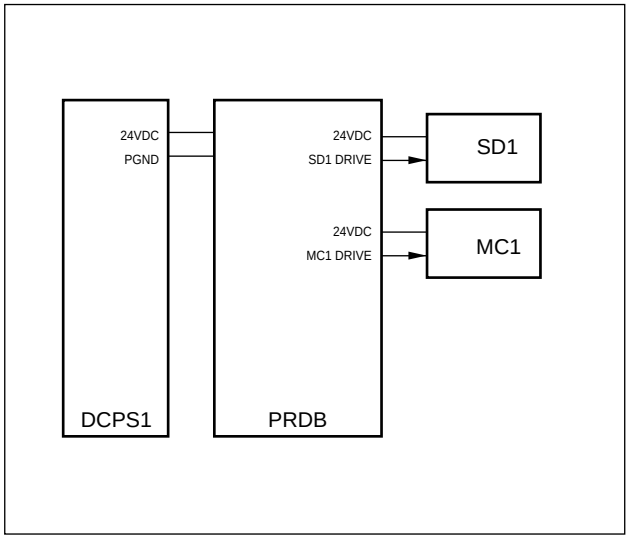
a. Output signals

(1) PCL CONT (PRDB to PCL)
PCL ON/OFF control signal
[L]: PCL ON
[H]: PCL OFF

(2) TSL DRIVE (PRDB to TSL)
TSL drive control signal
[L]: TSL ON
[H]: TSL OFF

(3) MC1 DRIVE (PRDB to MC1)
MC1 drive control signal
[L]: MC1 ON
[H]: MC1 OFF

[4] Separation Claw Control



The separation claws are driven by SD1 (separation claw), and is controlled by the PRDB.

1. Operation

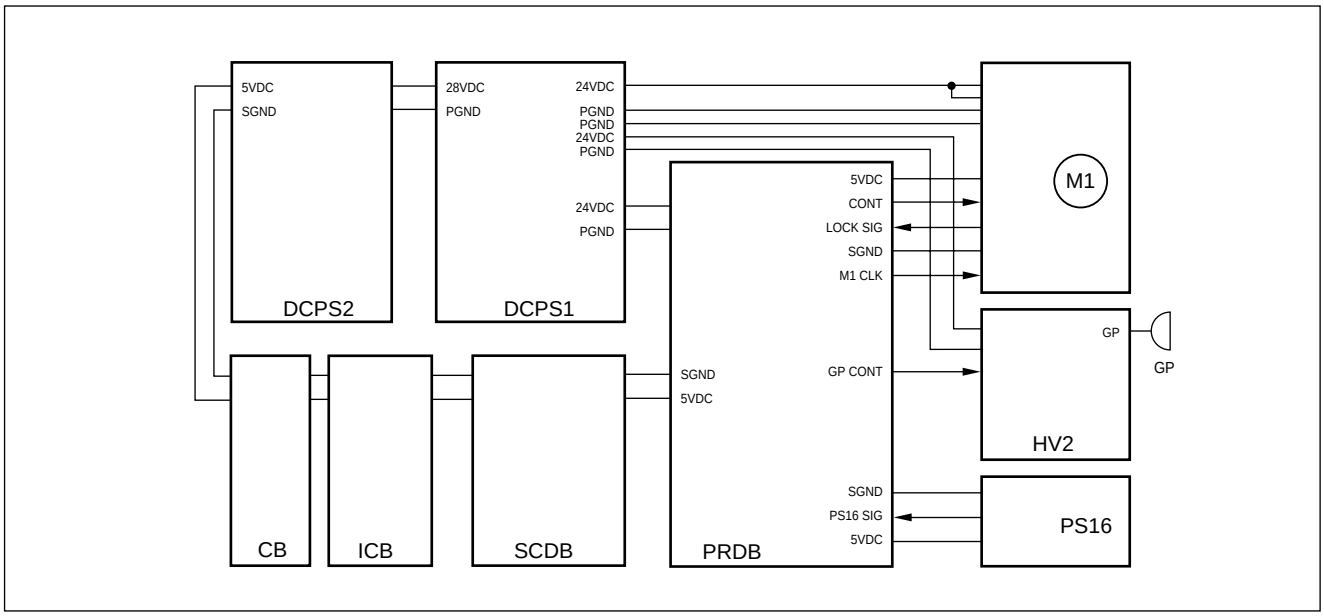
SD1 goes ON after the specified time from when MC1 goes ON, causing the separation claws to touch the drum in order to help separate the paper from the drum.

2. Signals

a. Output signal

(1) SD1 DRIVE (PRDB to SD1)
SD1 drive control signal
[L]: SD1 ON
[H]: SD1 OFF

[5] Transfer Entrance Guide Plate Control



A constant voltage is applied to the transfer guide plate in order to prevent toner from adhering to it.

1. Operation

a. ON/OFF timing

Transfer guide plate control goes ON after the specified time from when the Start button is pressed, and goes OFF again after the specified time from PS16 (registration) goes OFF.

b. Applied voltage

–500 VDC

2. Signals

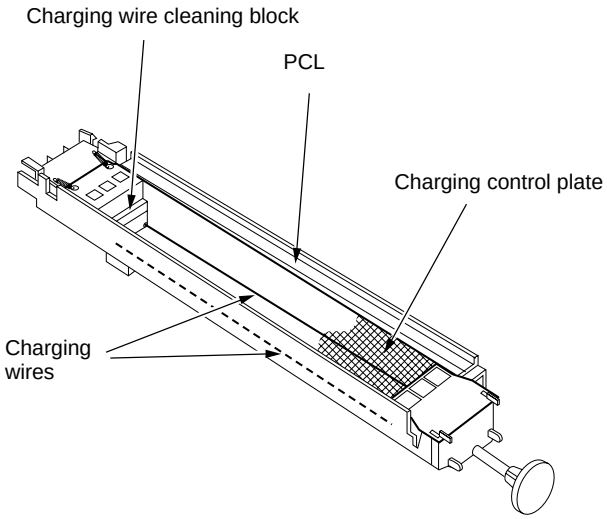
a. Output signals

(1) GP CONT (PRDB to HV2)
Signal for controlling ON/OFF of the voltage applied to the paper transfer guide plate.
[L]: Voltage is applied.
[H]: Voltage is not applied.

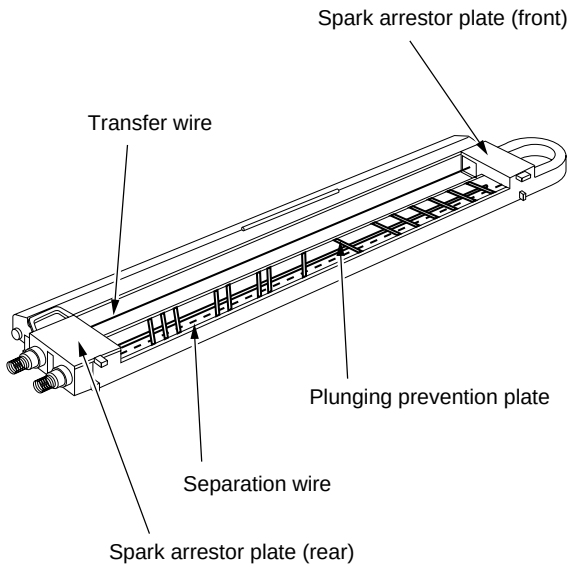
CORONA UNIT SECTION

[1] Composition

<Charging corona unit>



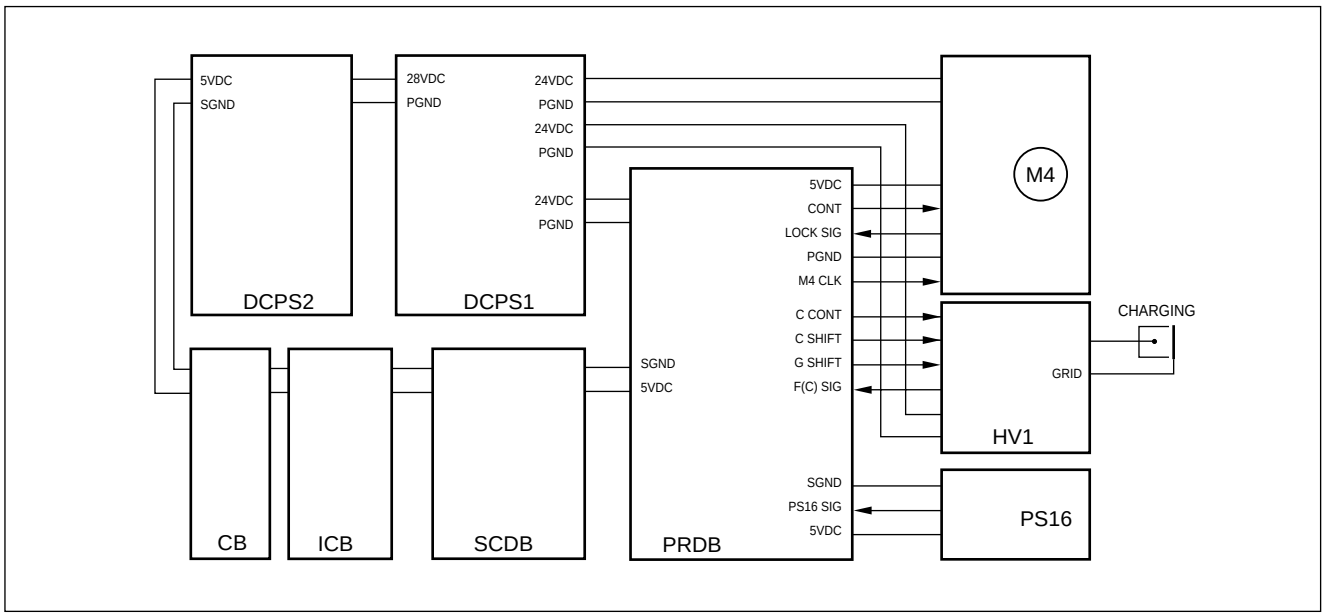
<Transfer and separation corona unit>



[2] Mechanisms

Mechanisms	Method
Charging	Scorotron (DC negative corona discharge) Discharge wire: Tungsten 0.06 mm dia. (gold-plated skin path) Grid control: Stainless steel plate With manual wire cleaner
Transfer	DC positive corona discharge Discharge wires: Tungsten 0.06 mm dia. (protection by a tough film of oxide)
Separation	AC/DC corona discharge Discharge wires: Tungsten 0.06 mm dia. (protection by a tough film of oxide)

[3] Charging Control



HV1 (high voltage unit/1), which controls charging, operates by means of control signals from the PRDB (printer drive board), and outputs a high voltage to the charging wires.

1. Operation

Charging control goes ON after the specified time from when M4 (drum) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF.

a. Charging

A Scorotron charging method is used. 24 VDC input from the DCPS1 (DC power supply 1) is raised to a negative DC high voltage which is then discharged.

b. Charging correction by means of the grid voltage

The grid voltage is output from HV1 to the charging control plate.

2. Signals

a. Input signal

(1) F(C) SIG (HV1 to PRDB)
[L] is output when the spark detection circuit operates and the charging output forcibly goes OFF.

b. Output signals

(1) C CONT (PRDB to HV1)
Charging and grid voltage ON/OFF control signal
[L]: Charging and grid voltage ON
[H]: Charging and grid voltage OFF

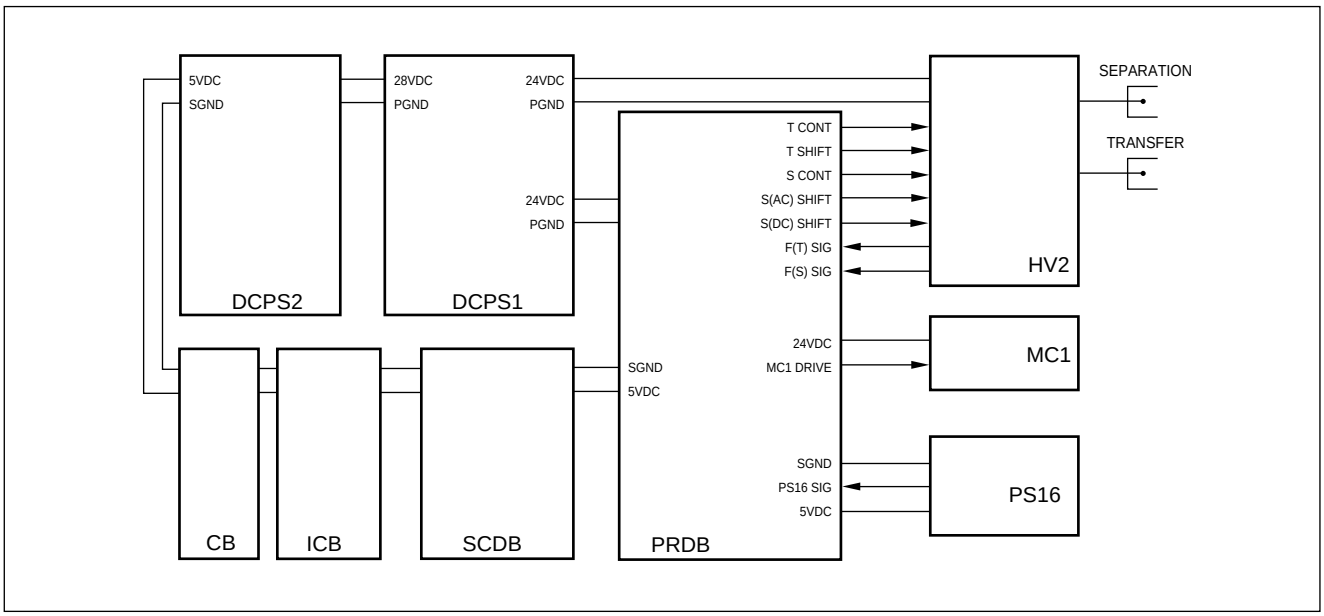
(2) C SHIFT (PRDB to HV1)
The charging corona unit output level is controlled by means of analog signals from the PRDB.

C SHIFT output range	4 to 10 V
Charging output range	–550 to –1200 μA

(3) G SHIFT (PRDB to HV1)
The charging grid voltage output level is controlled by analog signals from the PRDB.

G SHIFT output range	4 to 10 V
Grid voltage output range	–500 to –900 V

[4] Transfer/Separation Control



Transfer and separation corona unit are controlled by the PRDB (printer drive board) and HV2 (high voltage unit/2).

1. Operation

Transfer and separation corona discharge go ON after the specified time from when MC1 (registration) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF.

a. Transfer

A positive DC high voltage is used for transfer.

b. Separation

An AC high voltage is used for separation.

2. Signals

a. Input signals

(1) F(T) SIG (HV2 to PRDB)
[L] is output when the transfer spark detection circuit operates.

(2) F(S) SIG (HV2 to PRDB)
[L] is output when the separation spark detection circuit operates.

b. Output signals

(1) T CONT (PRDB to HV2)
Transfer corona unit ON/OFF control signal.
When this signal is [L], the transfer corona unit goes ON.

(2) T SHIFT (PRDB to HV2)
Transfer corona unit output level control signal
This signal controls the transfer corona unit output level using analog signals from the PRDB (printer drive board).

T SHIFT output range	4 to 10 V
Transfer voltage output range	40 to 450 μA

(3) S CONT (PRDB to HV2)
Separation corona unit ON/OFF control signal
When this signal is [L], the separation corona unit goes ON.

(4) S SHIFT (AC) (PRDB to HV2)
Separation corona unit output level control signal
This signal controls the separation corona unit output level (AC component) using analog signals from the PRDB.

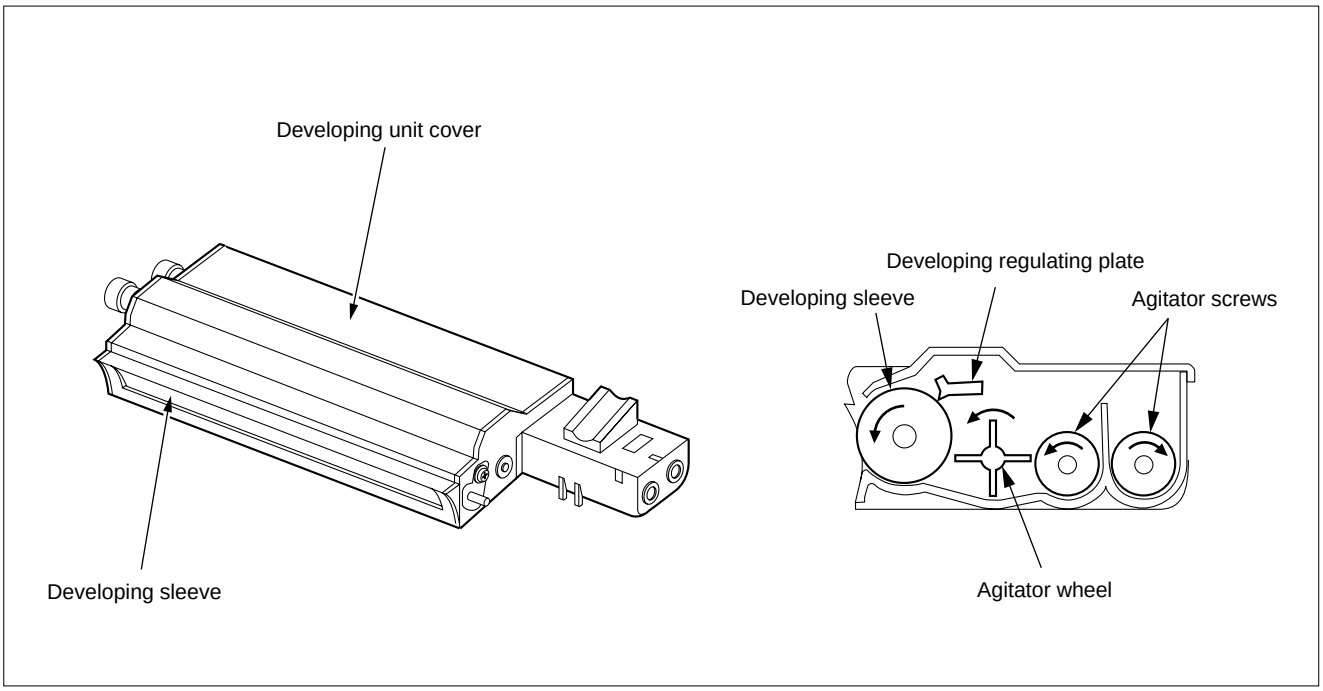
S SHIFT (AC) output range	4 to 10 V
Separation AC voltage output range	2.8 to 5.5 kV

(5) S SHIFT (DC) (PRDB to HV2)
Separation corona unit output level control signal
This signal controls the separation corona unit output level (DC bias component) using analog signals from the PRDB.

S SHIFT (DC) output range	4 to 10 V
Separation DC bias voltage output range	0 to –300 μA

DEVELOPING UNIT

[1] Composition



[2] Mechanisms

Mechanisms	Methods
Developing	2-component developer
Developing bias	DC bias
Developer agitation	Main agitation Auxiliary agitation

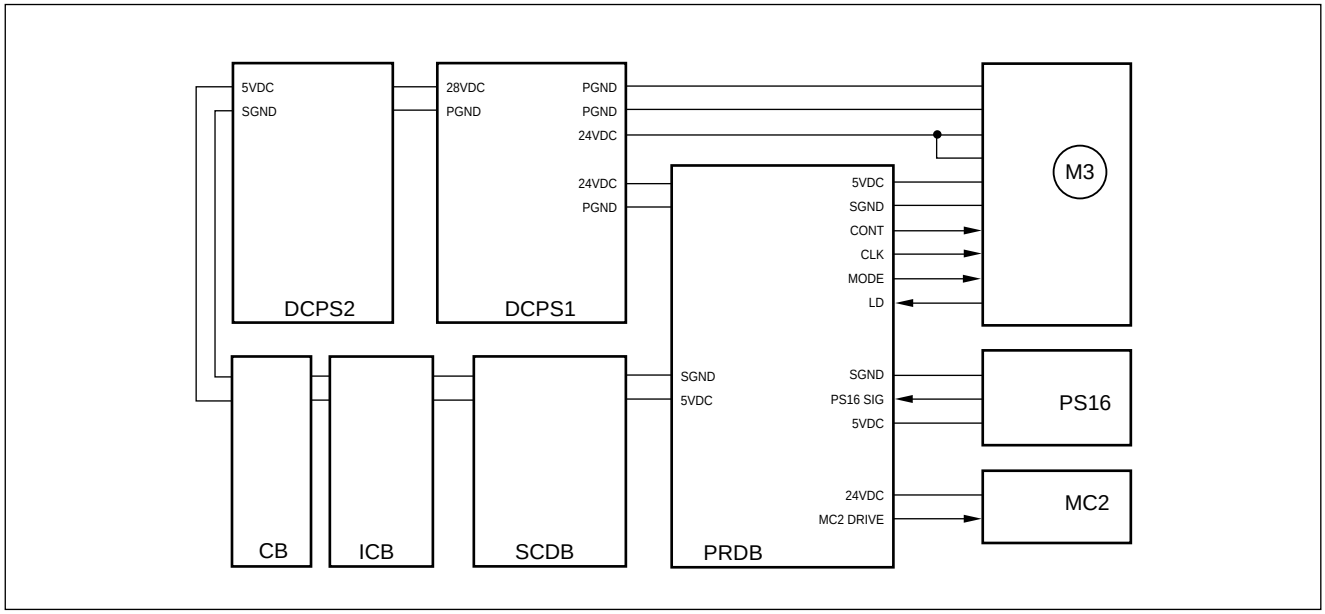
1. Developing unit drive

The developing unit is driven by the developing motor (M3).

The drive is transmitted from the developing drive input gear (1) to the agitation section.

The drive is transmitted from the developing drive input gear (2) via the developing MC (MC2) to the developing sleeve. (Refer to the drive system diagram.)

[3] M3 (Developing) Control



M3 (developing) is controlled by the PRDB (Printer drive board).

1. Operation

M3 is a 24 V drive DC motor which drives the developing sleeve, agitator wheel and agitator screw.
M3 is PLL-controlled by feedback signals from a speed sensor installed inside M3 itself, maintaining it at a constant speed.
M3 goes ON after the specified time from when the Start button is pressed, and goes OFF again after the specified time from the completion of charging control.
MC2 (developing) goes ON after the specified time from when M3 goes, and goes OFF again after the specified time from PS16 (registration) going OFF

2. Signals

a. Input signal

(1) LD (M3 to PRDB)
M3 rotational status detection signal
This signal becomes [L] when M3 reaches the set speed.

b. Output signals

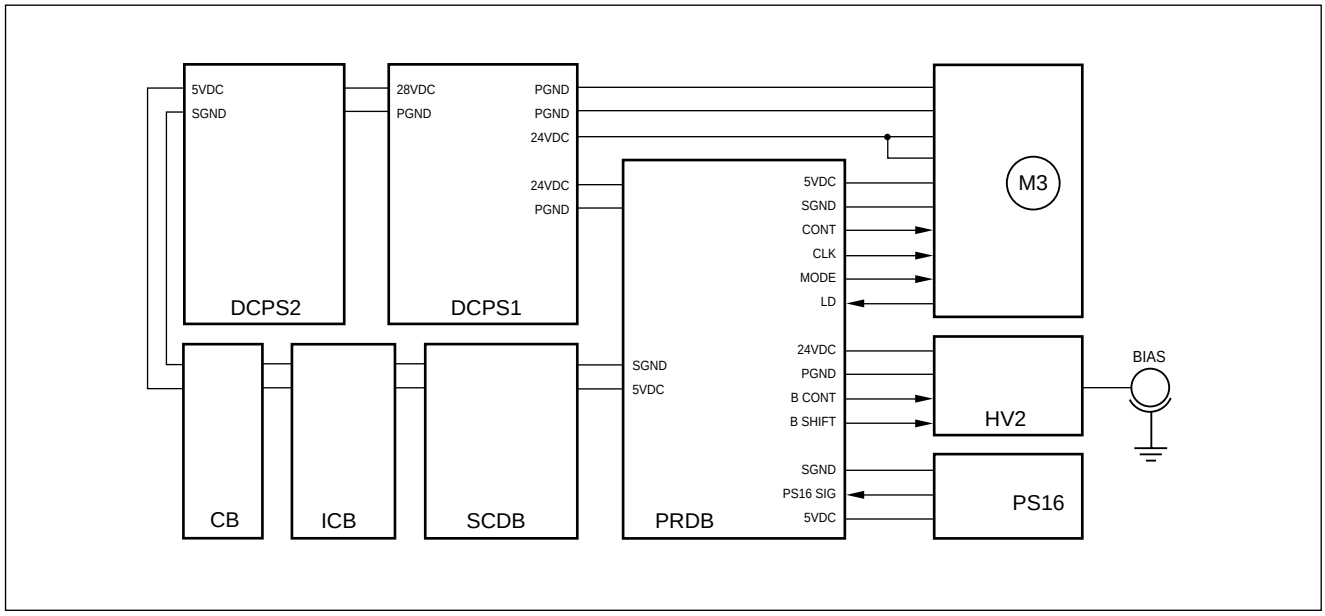
(1) CONT (PRDB to M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

(2) CLK (PRDB to M3)
M3 rotational speed control reference clock signal

(3) MODE (PRDB to M3)
M3 rotational speed switching signal
[L]: High speed
[H]: Low speed

(4) MC2 DRIVE (PRDB to MC2)
MC2 drive control signal
[L]: MC2 ON
[H]: MC2 OFF

[4] Developing Bias Control



The developing bias is controlled by the PRDB (printer drive board) via the HV2 (high voltage unit/2).

1. Operation

The developing bias is applied to the sleeve after the specified time from when the M3 (developing) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF

2. Signals

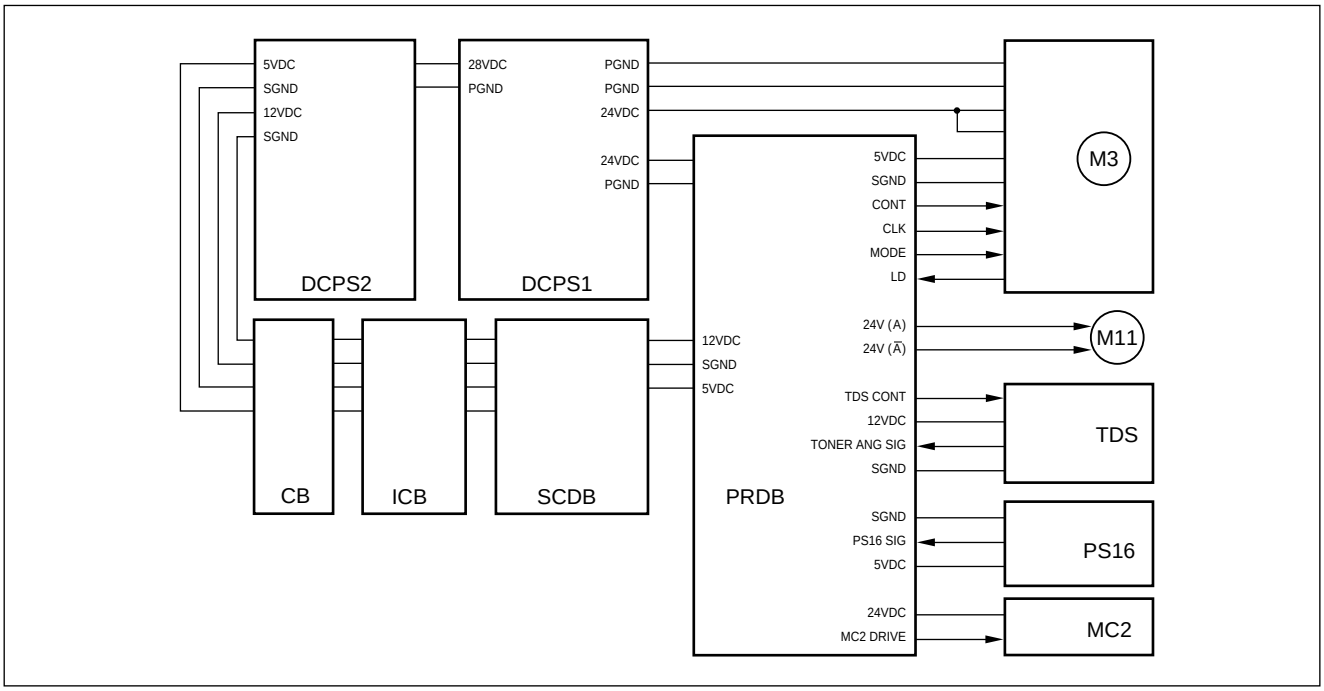
a. Output signals

(1) B CONT (PRDB to HV2)
Developing bias ON/OFF control signal
When this signal is [L], the developing bias goes ON, and a high voltage is output.

(2) B SHIFT (PRDB to HV2)
Developing bias level control signal
This signal controls the output level of the developing bias by means of analog signals from the PRDB.

B SHIFT output range	2 to 8 V
Bias voltage output range	–400 to –700 VDC

[5] Toner Density Control



The toner density is controlled by the TDS (toner density sensor), M11 (toner supply 2) and the PRDB (printer drive board).

1. Operation

a. Toner density detection

The TDS detects the density of the toner in the developing unit using an L detection method, and outputs an analog voltage signal that is proportion to the density to the PRDB.

The PRDB compares the detected voltage with the reference voltage corresponding to the initial density of the developer, and judges the necessity of supplying toner.

b. Toner supply operation to the developing unit

M11 is driven by 24 VDC supplied from the PRDB.

(1) When the power is switched ON

After the power is switched ON and the agitator screw is driven by the M3 (developing) via the MC2 (developing), then after the specified time the toner density is read.

This density is compared with the initial density of the developer, and if the density is low, M11 goes ON and toner supply takes place. (recovered until its initial density)

(2) During a copy operation

The relationship between the TDS output voltage and the toner supply time is as follows.

TDS output voltage	Toner supply time
1.99 V or lower	0 sec
2.00 to 2.09 V	0.24 sec
2.10 to 2.17 V	0.48 sec
2.18 to 2.27 V	0.72 sec
2.28 to 2.34 V	0.96 sec
2.35 to 2.42 V	1.20 sec
2.43 V or higher	1.80 sec

2. Signals

a. Input signal

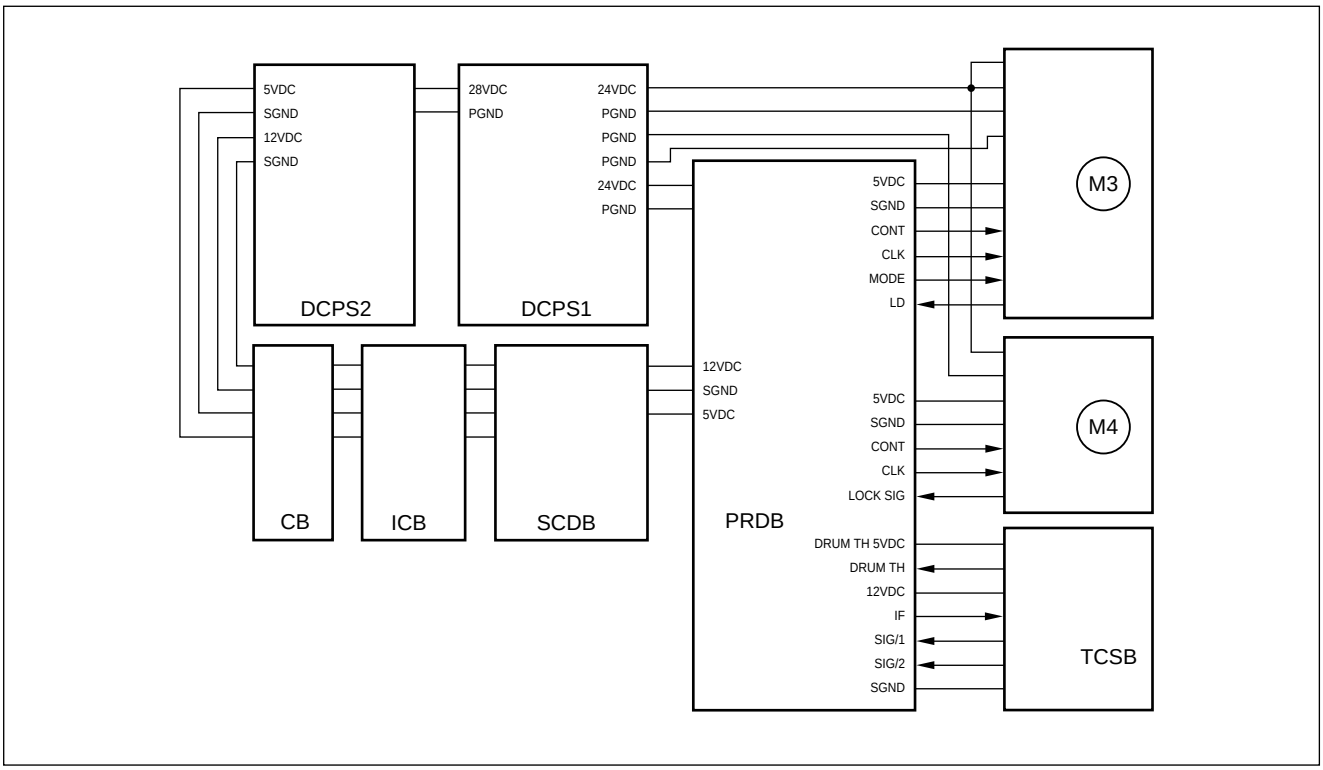
(1) TONER ANG SIG (TDS to PRDB)
An analog voltage proportional to the toner density is output.

b. Output signals

(1) TDS CONT (PRDB to TDS)
TDS (toner density sensor) output voltage adjustment signal
Output ~~vo~~ltage range: 3 to 8 V

(2) M11 (A, A) (PRDB to M11)
M11 (toner supply 2) drive control signal

[6] Dmax Control



Dmax control is carried out by the TCSB (toner control sensor board), M4 (drum), M3 (developing), and so on. These parts are controlled by the PRDB (printer drive board).

1. Operation

Dmax control is intended to align the maximum density for each machine with the reference level.

(1) Contents of implementation
Latent images are created several times at the maximum exposure, the images are developed while the rotational speed of the sleeve is varied, then each density is read by the PD1 (Dmax senser) on the TCSB.
The rotational speed of the sleeve when the density reaches the reference level is memorized as the optimum sleeve speed, then subsequently developing is carried out at this sleeve speed until Dmax correction takes place next.

(2) Implementation timing
a) When the power is switched ON
b) At 500 copies
c) At 1000 copies

2. Signals

a. Input signals

(1) SIG 1 (TCSB to PRDB)
This signal monitors the light reflected from the surface of the drum (without toner), and corrects the voltage applied to the PD1 so that the output becomes 6 V (calibration).
Reference voltage: 6 V

(2) SIG 2 (TCSB to PRDB)
Output voltage of the PD1 on the TCSB
Reference voltage: 1.5 V

<Implementation timing>

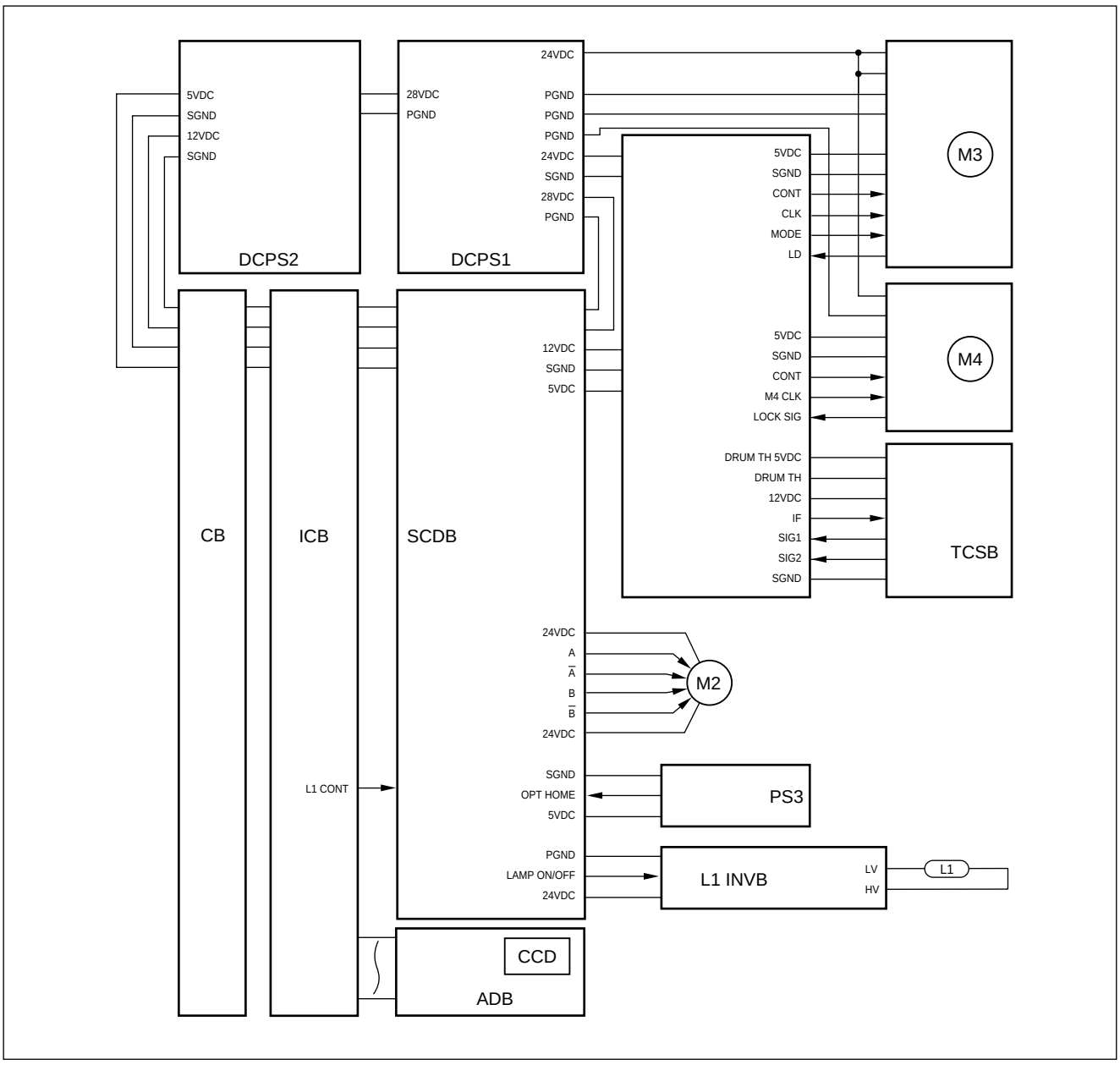
Calibration takes place before Dmax correction.

(3) DRUM TH (TCSB to PRDB)
Drum surface temperature detection analog signal

b. Output signals

(1) IF (PRDB to TCSB)
Dmax value detection LED ON/OFF control signal
[L]: LED ON
[H]: LED OFF

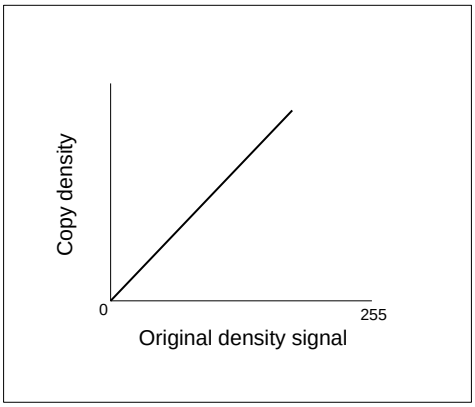
[7] Gradation Correction Control



Gradation correction control is intended to stabilize the reproduction density of halftone for each machine.

1. Operation

Gradation density control is an operation in which the gradation characteristics of the developing toner density with respect to the exposure in the image forming section (the drum and peripheral units) are detected, then processed so that the relationship between the original density and the copy density is linear.



(1) Contents of implementation

1) During initial adjustment (adjustment by the service mode)

During image quality adjustment in the 36 mode, an SGU test pattern (before gradation correction) is output, and read by the scanner (CCD) and memorized.

(For details, refer to the “Adjustment section” in Field Service.)

2) During normal operation (automatic adjustment)

Toner patch patterns (gradation patterns) of different densities are formed on the drum, and each toner patch density is read by the Dmax sensor and memorized as drum gradation data.

The gradation correction value is computed based on the gradation data of the SGU test pattern read by the CCD and the drum gradation data read by the Dmax sensor, and used to optimally correct the laser output.

(2) Implementation timing

1) Initial adjustment

When the drum, PRMB (parameter memory board) or TCSB (toner control sensor board) developer is replaced

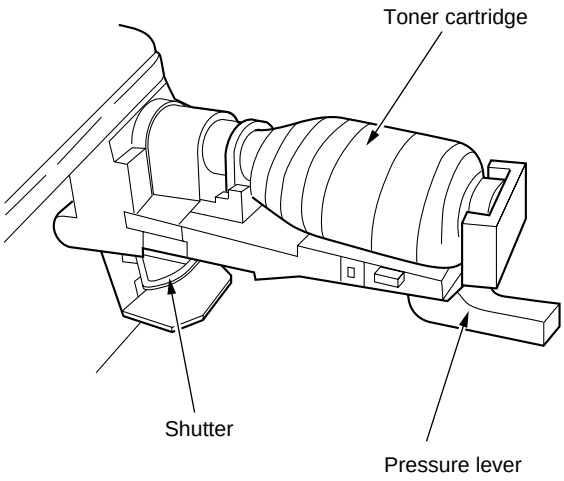
2) Normal operation

a) When the power is switched ON

b) At 500 copies

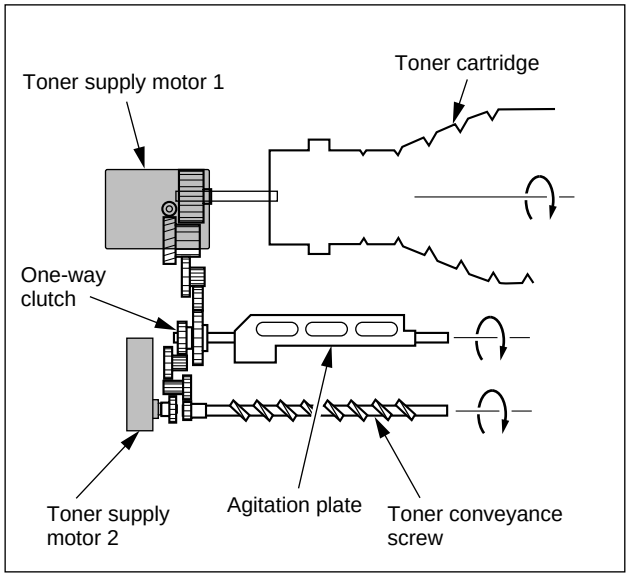
TONER SUPPLY UNIT

[1] Composition



[2] Mechanisms

Mechanisms	Methods
Toner supply	Screw conveyance
Toner level detection	Piezoelectric method 120g±20g
Toner agitation *1	Agitation plate
Toner cartridge*2	Rotating cartridge method Capacity 600g
Toner leakage prevention	Toner supply shutter



***1:** Toner agitation

The drive is transmitted from the following two motors via a gear group to the agitation plate.

a. Toner supply motor 1 (M10)

For toner cartridge drive

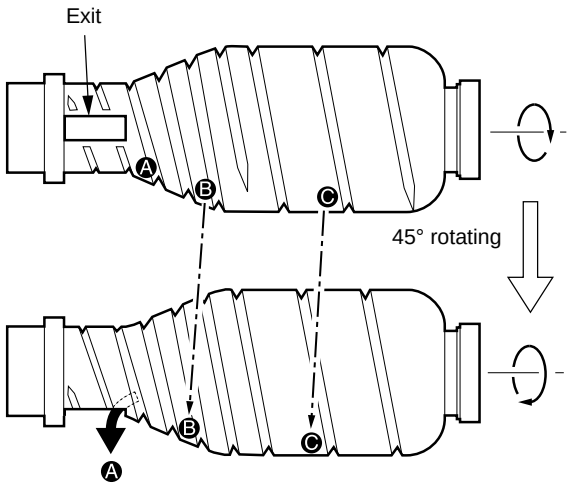
b. Toner supply motor 2 (M11)

For toner conveyance screw drive

The agitation plate rotates faster in rotation of the toner supply motor 2 than the toner supply motor 1. When two motors rotate simultaneously, the drive of the M10 is transmitted by theone way clutch to the agitation plate shaft.

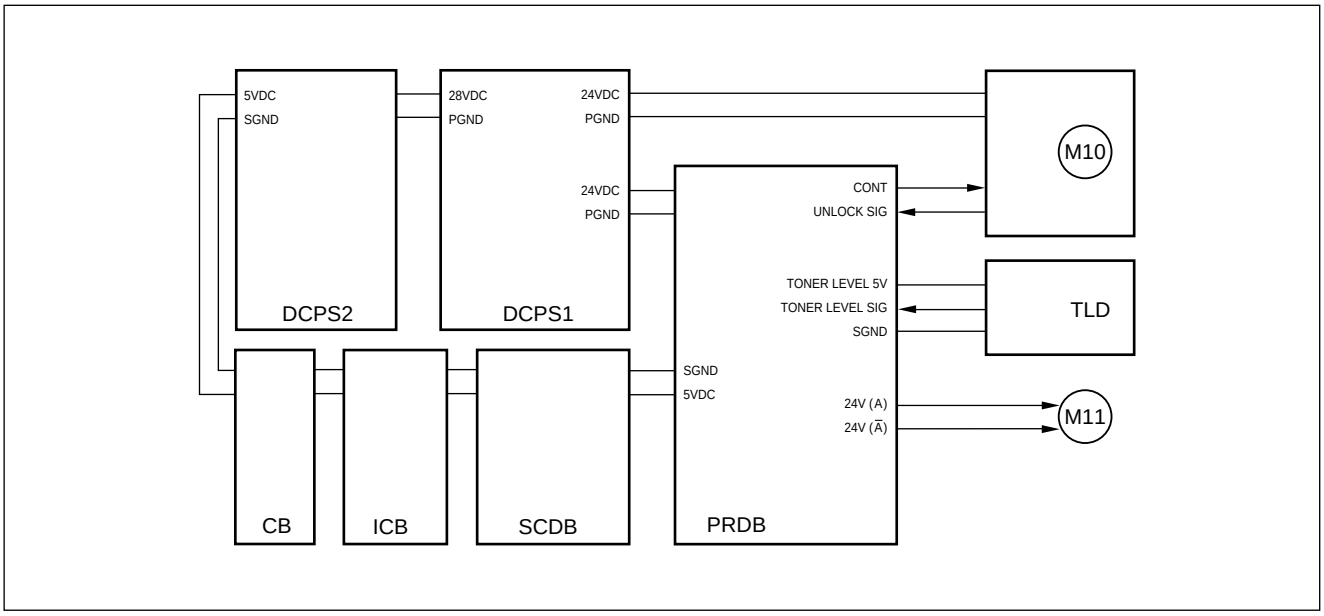
***2:** Toner cartridge

When the toner cartridge rotates, toner moves to the cartridge exit along the spiral groove marked on the surface of the toner cartridge.
When the cartridge points down, toner flow to the toner supply unit agitation and conveyance section.



Toner is supplied to the agitation/conveyance section of the toner supply unit.

[3] Toner Level Detection Control



Toner level detection control is carried out by the TLD (toner level detector) and PRDB (printer drive board).

1. Operation

a. Toner level detection

A piezoelectric device is used as the TLD.
When the level of toner in the toner supply unit becomes low, the “supply toner” signal is output to the PRDB. As a result, a message is displayed on the LCD (display board) via the OB (operation board).

b. Detection timing

The detection timing is as follows.
· When the machine is switched ON
· When the front door is opened and closed
· During a copy operation

c. Toner supply operation to toner supply unit

When TLD detects a no-toner condition, M10 (toner supply 1) goes ON and supplies toner.

d. Detection of no toner state in toner cartridge

It the no toner state is detected by TLD after M10 has been held ON for a specified period of time, the toner cartridge is assumed to be empty.

2. Signals

a. Input signals

(1) TONER LEVEL SIG (TLD to PRDB)
When the level of toner in the toner supply unit becomes low, this signal becomes [L], and a message is displayed on the LCD connected to OB.

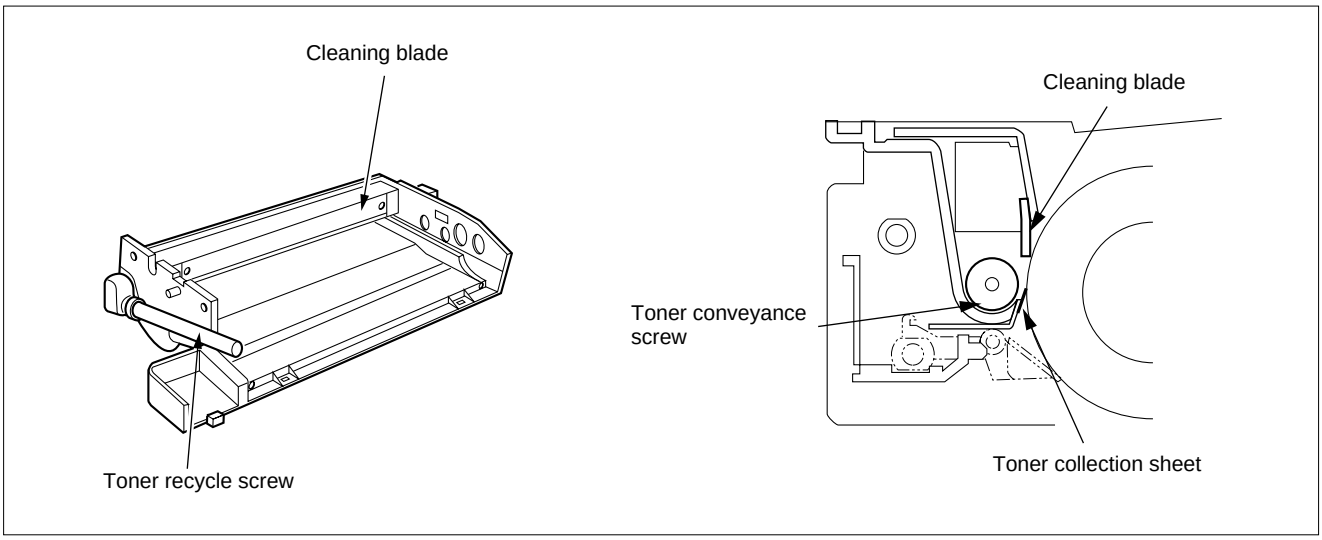
(2) UNLOCK SIG (M10 to PRDB)
M10 rotational status detection signal
This signal becomes [L] when M10 reaches the set speed.

b. Output signals

(1) CONT (PRDB to M10)
M10 drive control signal
[L]: M10 ON
[H]: M10 OFF

CLEANING/TONER RECYCLE UNIT

[1] Composition

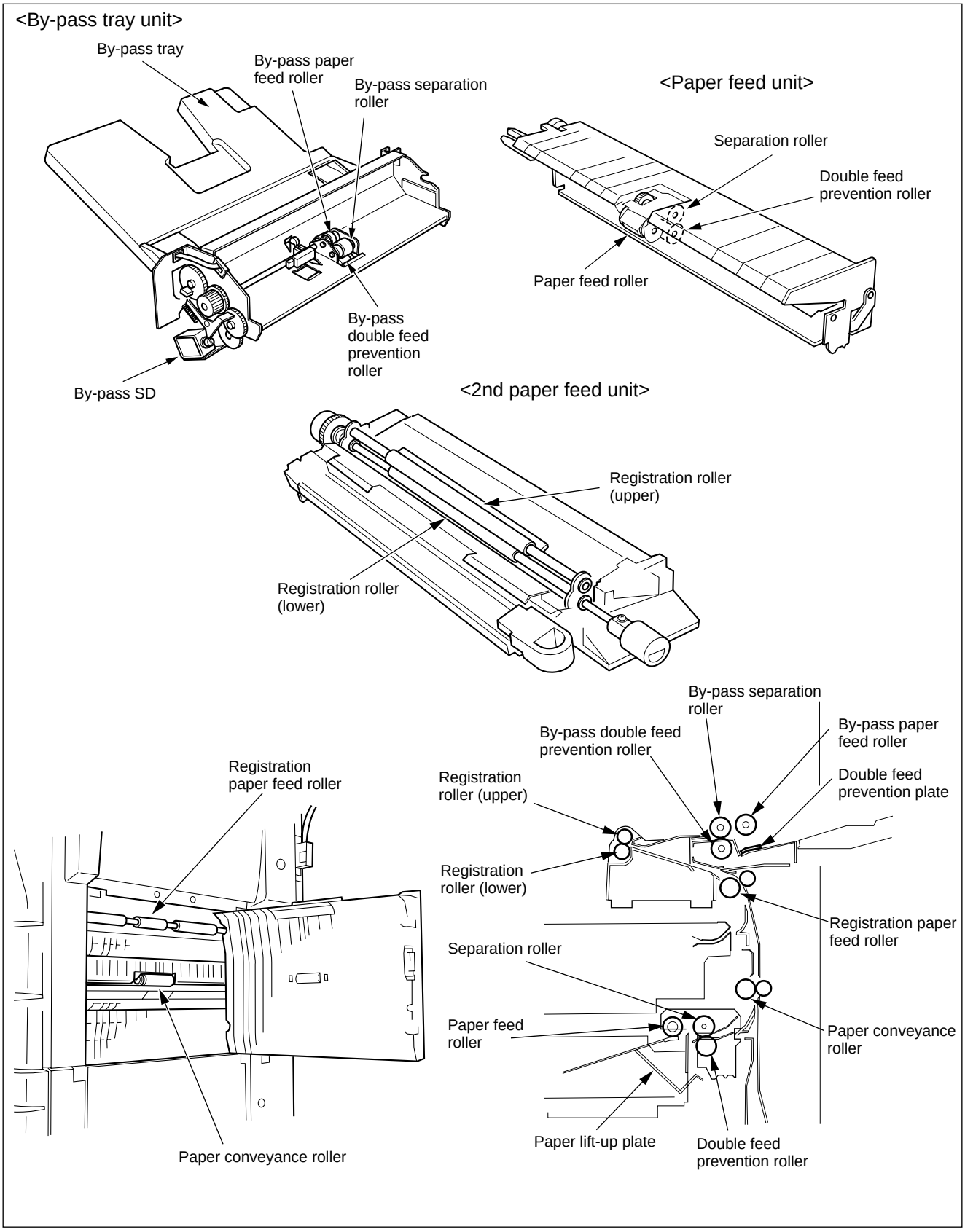


[2] Mechanisms

Mechanisms	Methods
Drum cleaning	Cleaning blade (Fixed type)
Toner recycle	Screw conveyance to the developing unit
Toner collection	Toner collection sheet

PAPER FEED UNIT

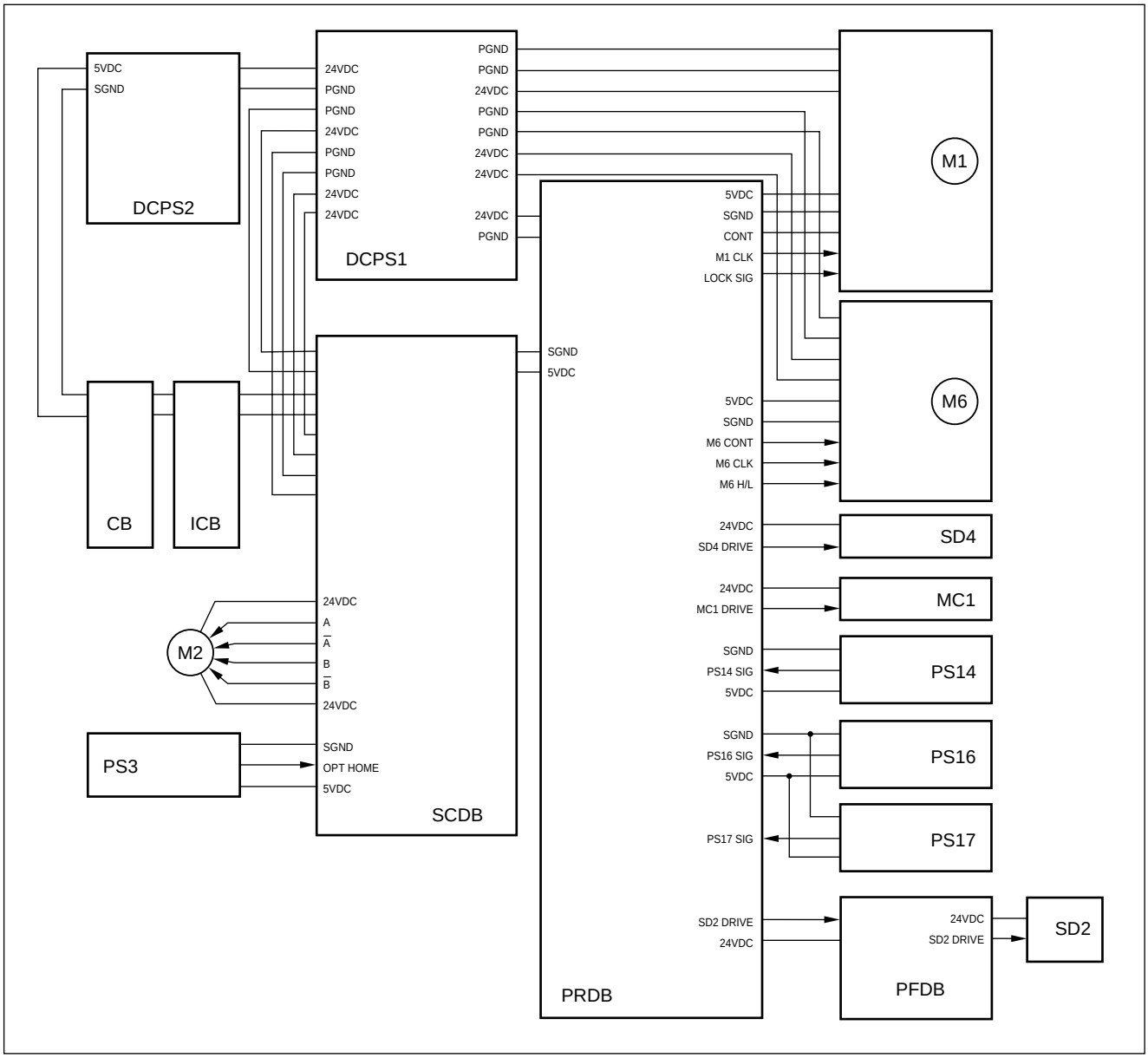
[1] Composition



[2] Mechanisms

Mechanisms	Methods
Paper lift pressure reduction	Paper feed roller
Paper lift-up	Paper lift-up plate
Double feed prevention	Torque limiter
Tray loading	Front loading
1st paper feed	Paper feed roller, 1st paper feed SD
2nd paper feed	Registration roller, registration clutch
By-pass paper feed	Paper feed roller, By-pass paper feed SD
Paper size detection (universal tray)	Tray detection switch (tact switch)
By-pass tray size detection	Paper size detection PS Paper size detection VR

[3] Paper Feed Control



The 1st paper feed takes place as a result of the transmission of drive force from M6 (1st paper feed) via SD2 (1st paper feed) and SD4 (by-pass) to the respective paper feed roller and separation roller. At this time, each paper feed roller is not contact with the paper, hence the paper feed roller and the by-pass plate are moved up and down by SD2 and SD4, causing each roller to contact with the paper. Control of each roller is carried out by the PRDB (printer drive board). The 2nd paper feed is carried out by MC1 (registration). Related signals are PS3 (optics HP), PS14 (open close detection), PS16 (registration) and PS17 (no feed).

1. Operation

a. 1st paper feed operation timing (by-pass)

(1) 1st copy start
After the specified time from when the Start button is pressed

(2) 2nd copy start
After the specified time from when SD4 (by-pass) goes ON for the 1st copy

(3) OFF timing
After the specified time from when SD4 goes ON

b. 1st paper feed operation timing (tray 1)

(1) 1st copy start
After the specified time from when the Start button is pressed

(2) 2nd copy start
After the specified time from when SD2 (1st paper feed) goes ON for the 1st copy

(3) OFF timing
After the specified time from when SD2 goes ON

c. 2nd paper feed control (MC1)

(1) ON timing
After the specified time from when V-Valid signal goes ON

(2) OFF timing
After the specified time from when MC1 (registration) goes ON

2. Signals

a. Input signals

(1) PS14 SIG (PS14 to PRDB)
Paper feed door open/close detection signal
[L]: Door is closed
[H]: Door is open

(2) PS17 SIG (PS17 to PRDB)
Paper detection signal used for detecting the paper at before registration section.
[L]: Paper is not detected
[H]: Paper is detected

b. Output signals

(1) M6 CONT (PRDB to M6)
M6 (1st paper feed) drive control signal
[L]: M6 ON
[H]: M6 OFF

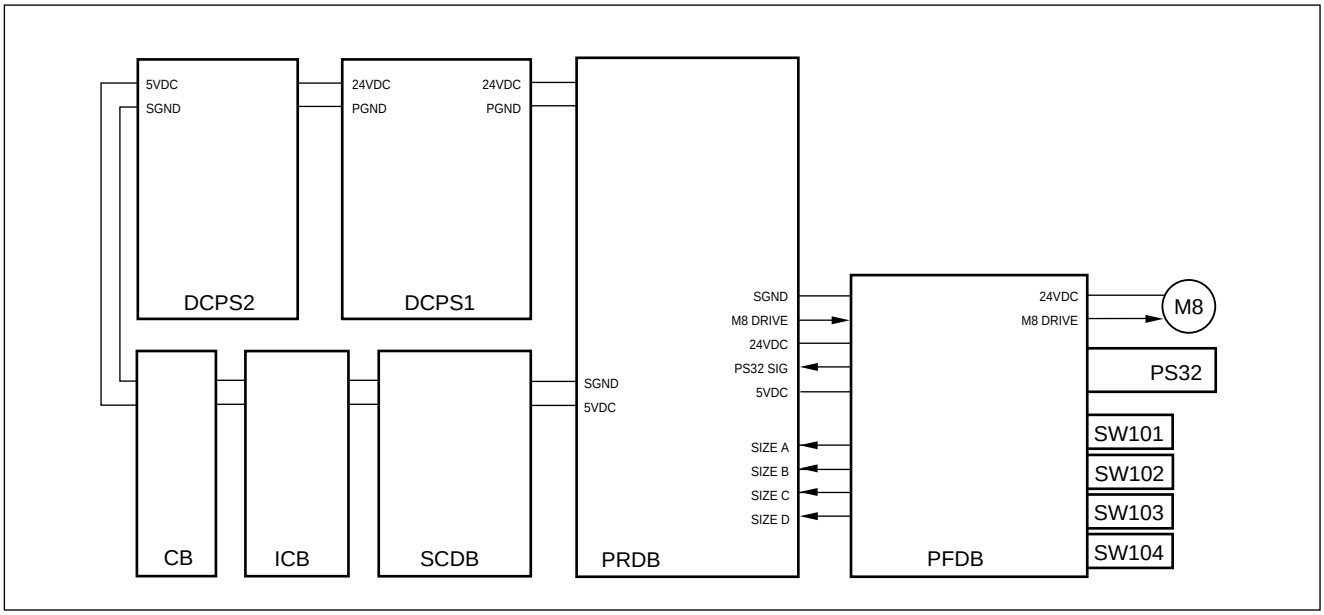
(2) M6 H/L (PRDB to M6)
M6 rotational speed switching signal
[L]: High speed
[H]: Low speed

(3) M6 CLK (PRDB to M6)
Reference clock signal for controlling the speed of M6

(4) SD4 DRIVE (PRDB to SD4)
SD4 drive control signal
[L]: SD4 ON
[H]: SD4 OFF

(5) SD2 DRIVE (PRDB to PFDB to SD2)
SD2 drive control signal
[L]: SD2 ON
[H]: SD2 OFF

[4] Paper Up-down Control



When a paper feed tray is loaded, M8 (tray) goes ON for a certain period, raising the bottom plate in the tray.
Related signal is PS32 (upper limit detect).

1. Operation

a. ON timing

M8 is turned ON by the SW101 to 104 (paper size detection) going ON.

b. OFF timing

M8 is turned OFF by PS32 going ON.

2. Signals

a. Input signals

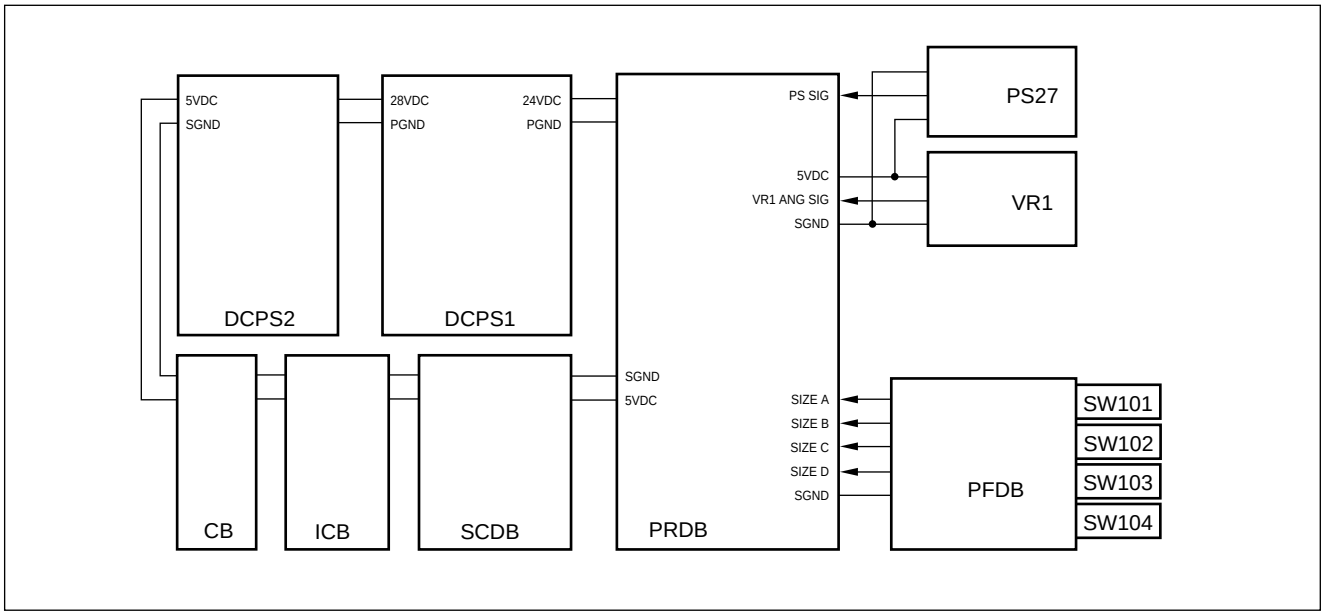
(1) PS32 SIG (PS32 to PFDB to PRDB)
Tray upper limit detection signal
The paper in the tray is raised by M8, and when it reaches the upper limit position this signal becomes [H].

(2) SIZE A, B, C, D (SW101, 102, 103, 104 to PFDB to PRDB)
Paper size detection switch ON/OFF signal

b. Output signals

(1) M8 DRIVE (PRDB to PFDB to M8)
M8 drive control signal
[L]: M8 ON
[H]: M8 OFF

[5] Paper Size Detection Control



The size of the paper in the paper feed tray is detected as a result of the matrix circuit in the PRDB (printer drive board) detecting the signal from the PFDB (paper feed detection board). The size of paper in the by-pass tray is detected by the PRDB according to the combination of PS27 (paper size detection (by-pass)) and VR1 (paper size detection (by-pass)).

1. Operation

a. Paper feed tray 1 paper size detection

The paper feed detection board has four switches which detect the position of the paper size detect actuators in the paper feed tray. The paper size is detected according to the particular ON-OFF combination of these switches.

The relation between the state of the switches on the paper feed detection board and the paper size is shown below.

Paper size	SW101	SW102	SW103	SW104
11 x 17	OFF	OFF	OFF	ON
8.5 x 14	ON	OFF	OFF	ON
8.5 x 11	ON	ON	ON	ON
B5	ON	OFF	ON	ON
A4R	OFF	ON	ON	OFF
B5R	ON	ON	OFF	OFF
A5R	ON	ON	ON	OFF
8.5 x 11R	ON	OFF	ON	OFF

b. By-pass tray paper size detection

The size in the lengthwise direction of the paper in the by-pass tray is detected by the ON/OFF state of PS27, and the size in the widthwise direction is detected by the resistance of VR1 which varies according to the position of the guide on the by-pass tray.

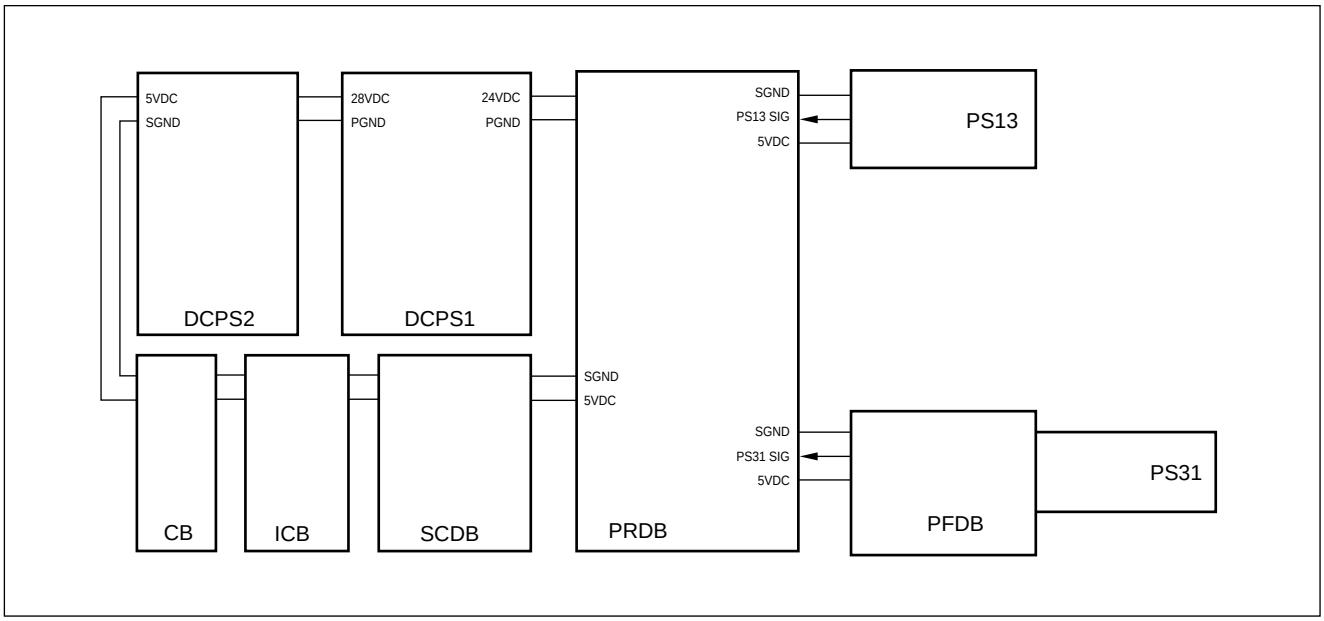
2. Signals

a. Input signals

(1) PS SIG (PS27 to PRDB)
By-pass tray lengthwise direction paper size detection signal
[L]: 8.5 x 14 size or larger
[H]: 8.5 x 11R size or less

(2) VR1 ANG SIG (VR1 to PRDB)
By-pass tray widthwise direction paper size detection signal

[6] No Paper Detection Control



No paper detection takes place by PS31 (no paper detect) and PS13 (no paper (by-pass)) which are controlled by the PRDB (printer drive board).

1. Operation

a. No paper detection control

When a paper feed tray or the by-pass tray becomes empty, PS31 or PS13 goes ON. As a result, a message is displayed on the LCD (display board) via the OB (operation board).

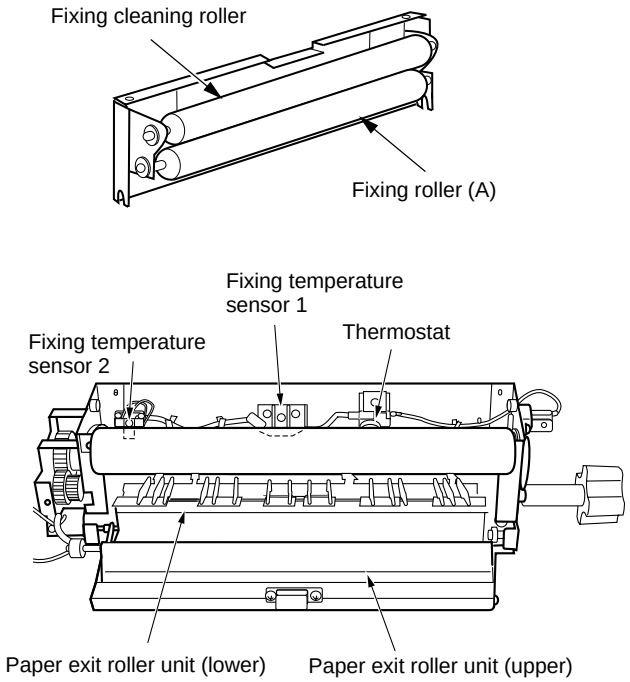
2. Signals

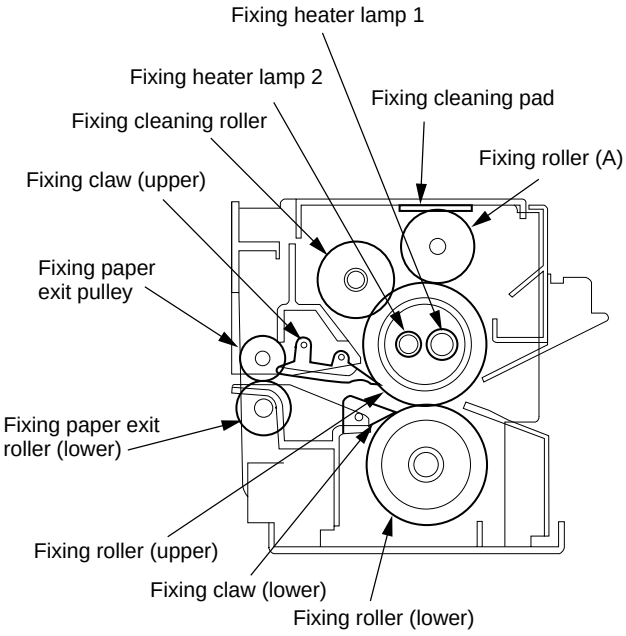
a. Input signals

(1) PS13 SIG (PS13 to PRDB)
By-pass tray no paper detection signal
[L]: No paper in tray
[H]: Paper in tray

FIXING UNIT

[1] Composition



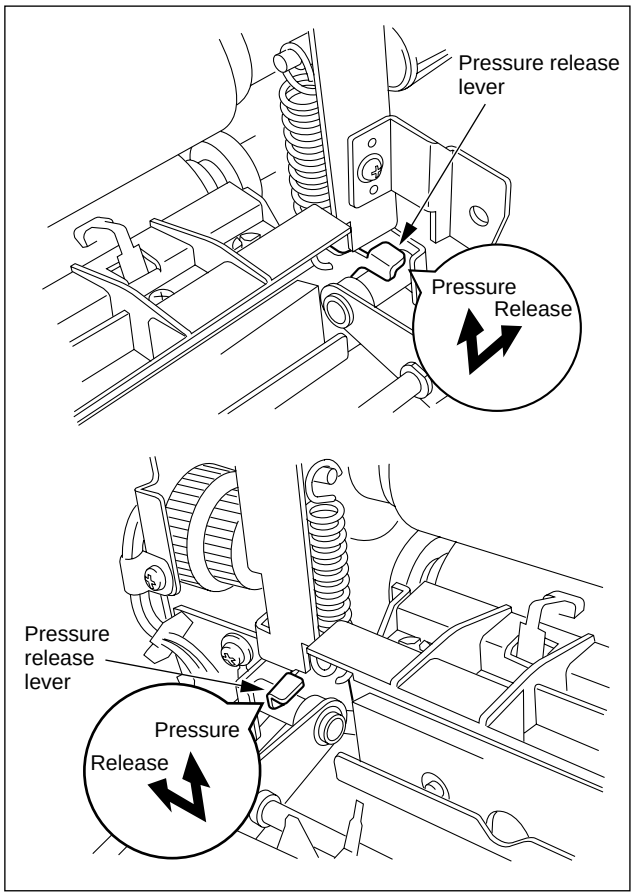


[2] Mechanisms

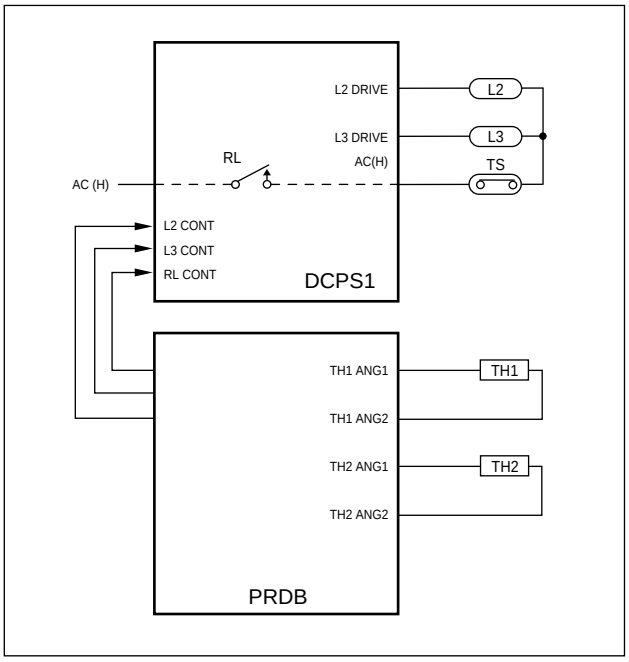
Mechanisms	Methods
Fixing	Pressure + heat roller
Heat source	Heater lamp (Two upper lamps)
Cleaning	Fixing cleaning roller, Fixing cleaning pad
Oil apply	Fixing roller (A) (silicone oil)
Upper roller	Aluminium + PFA coating
Lower roller*1	Silicone rubber + PFA tube
Separation	Separation claws (4 upper and 4 lower claws)
Temperature detection	Upper roller • Non-contact type thermistor (for control) • Contact type thermistor (for abnormality detection)
Overheating prevention	Non-contact type thermostat (upper roller)
Neutralizing	Neutralizing brush

***1:** Pressure release mechanism of the fixing roller (lower)

The pressure release of the fixing roller (lower) is carried out by fixing and releasing the two rear and front pressure release lever.



[3] Fixing Temperature Control



The fixing roller (upper) is heated by L2 (fixing heater lamp 1), and L3 (fixing heater lamp 2).
The PRDB (printer drive board) detects the temperature of the fixing roller (upper) by means of TH1 (fixing temperature sensor 1) and TH2 (fixing temperature sensor 2), and controls L2 and L3 via DCPS1.

1. Operation

a. Temperature control

(1) Warm-up
The PRDB turns ON the fixing heater lamp circuit in DCPS1 (DC power supply 1) as soon as the machine is switched ON, causing L2 and L3 to go ON until the fixing roller (upper) reaches the specified temperature.

After the completion of warm-up, the PRDB goes ON and OFF repeatedly so as to maintain the set temperature.

(Setting temperature)
195°C
(Warm up time)
Within 90 seconds (Room temperature : 20°C)

b. Protection against abnormality

TS (thermostat) is used to prevent the temperature of the fixing roller (upper) from rising abnormally. This thermostat is not in contact with the fixing roller (upper).
The operating temperature of the thermostat is shown below.
TS: Approx. 190°C

2. Signals

a. Input signals

(1) TH1 ANG 1, 2 (TH1 to PRDB)
TH1 output signal
This signal outputs a voltage that is proportional to the surface temperature at the center of the fixing roller (upper).
This signal is used for temperature control and also for detecting an abnormally high temperature or other abnormality.

(2) TH2 ANG 1, 2 (TH2 to PRDB)
TH2 output signal
This signal outputs a voltage proportional to the surface temperature at the end of the fixing roller (upper). It is not directly related to temperature control but is used for detecting an abnormality.

b. Output signals

(1) L2 DRIVE (DCPS1 to L2)
L2 AC(N) supply line.
The AC supply is switched ON or OFF according to L2 CONT.

(2) L3 DRIVE (DCPS1 to L3)
L3 AC(N) supply line.
The AC supply is switched ON or OFF according to L3 CONT.

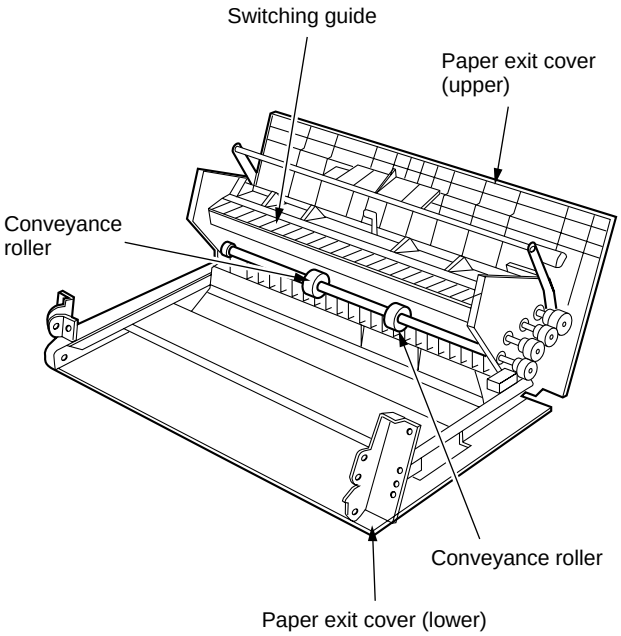
(3) L2 CONT (PRDB to DCPS1)
L2 ON/OFF control signal
[L]: L2 ON
[H]: L2 OFF

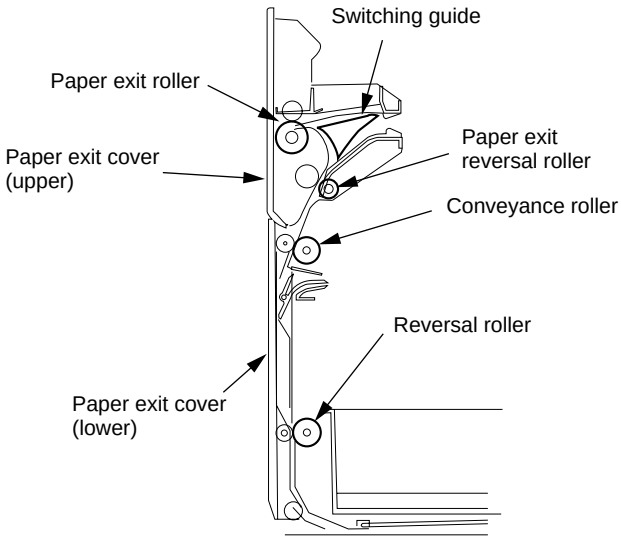
(4) L3 CONT (PRDB to DCPS1)
L3 ON/OFF control signal
[L]: L3 ON
[H]: L3 OFF

(5) RL CONT (PRDB to DCPS1)
RL (main) ON/OFF control signal
[L]: RL ON
[H]: RL OFF

REVERSAL AND PAPER EXIT SECTION

[1] Composition





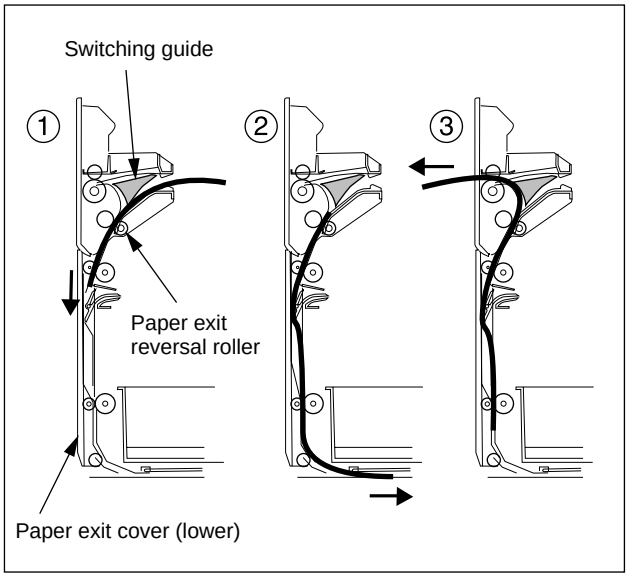
[2] Mechanisms

Mechanisms	Methods
Paper path switching *1	Switching gate
Paper conveyance	Roller conveyance

***1:** Paper path switching
Paper exited from the fixing unit of the main body is divided to straight paper exit and reversal paper exit by the switching guide.

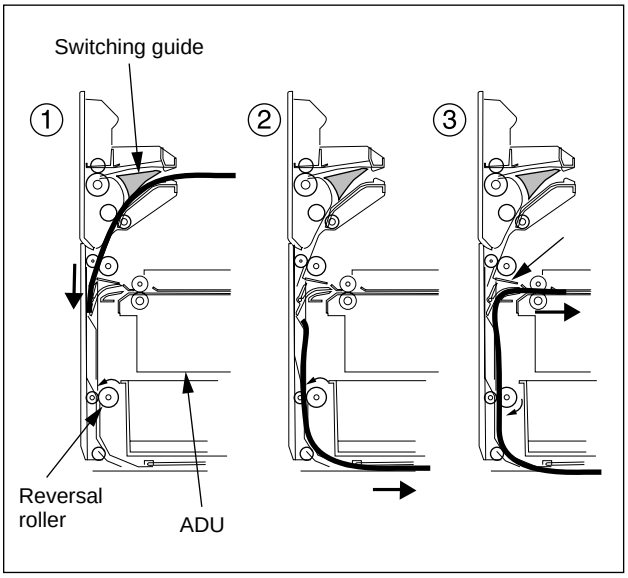
The switching guide is operated by ON/OFF of the gate SD (SD5).

a. Reversal paper exit operation
Paper is conveyed down the paper exit cover (lower) by the switching guide. When the trailing edge of the paper passes the switching guide the paper exit reversal roller rotates in the reverse direction and the paper is exited face down.

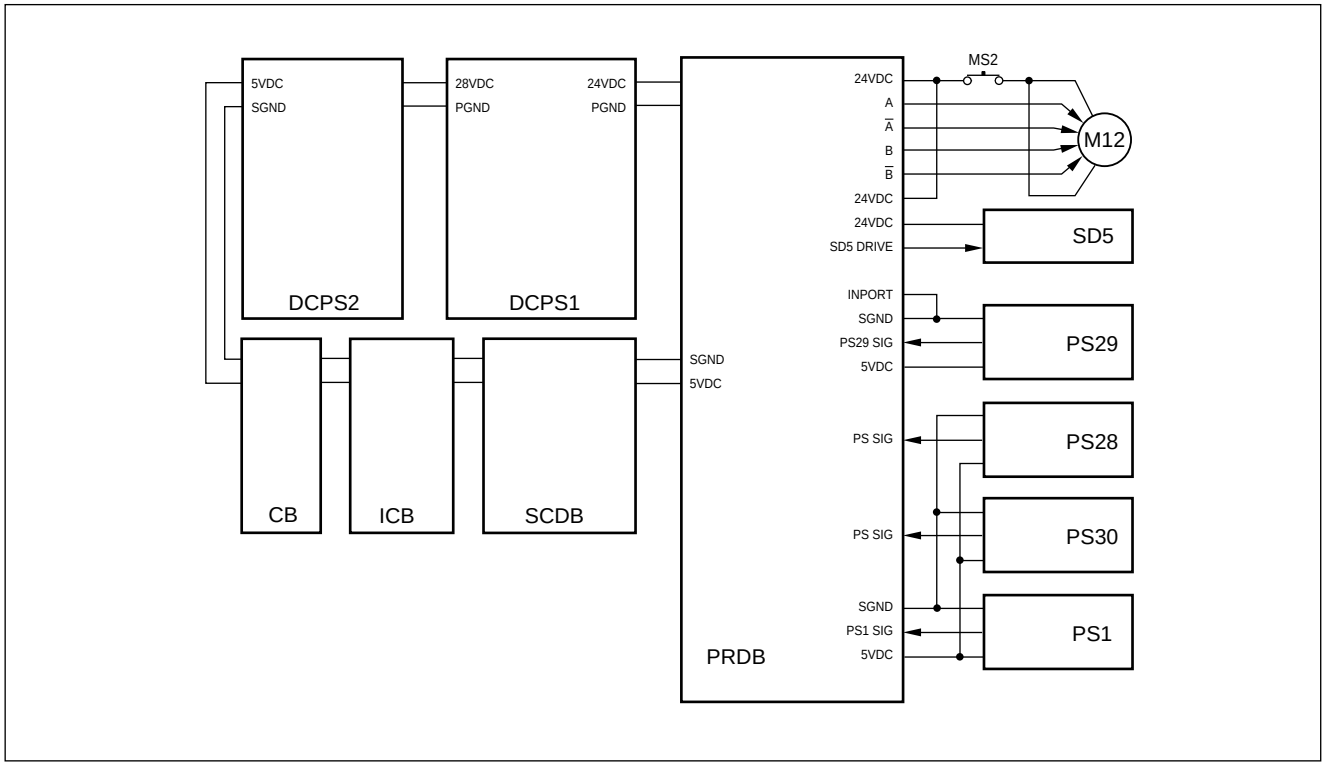


b. ADU reversal operation

Paper is conveyed down the paper exit cover (lower) by the switching guide. When the trailing edge of the paper passes the reversal guide the reversal roller rotates in the reverse direction and the paper is conveyed to the ADU stacker.



[3] Reversal Paper Exit Control



Reversal and paper exit section switches the paper path to straight paper exit or reversal paper exit by the SD5 (gate). SD5 is driven by the PRDB (printer drive board).
Related signals are PS1 (paper exit), PS28 (reversal detection 1), PS29 (fixing exit) and PS30 (reversal detection 2).

1. Operation

a. Straight paper exit control

M12 (reversal paper exit) rotates in the forward direction after the specified time from when PS29 goes ON. At this time, the switching guide is OFF, hence the paper passes over the top of the switching guide and is exited.
M12 goes OFF after the specified time from when PS1 detects the trailing edge of the paper.

b. Paper reversal and exit control

M12 rotates in the forward direction after the specified time from when PS29 goes ON, causing the paper to be conveyed to the switching guide. At this time, SD5 goes ON after the specified time from when MC1 goes ON, causing the switching guide to move to the paper reversal and exit side. As a result, the paper is conveyed to the back side of the reversal and exit section cover (lower). After the specified time from when PS28 detects the trailing edge of the paper and goes OFF, M12 switches to reverse rotation, and the paper is fed in the reverse direction. The reverse-fed paper is prevented from returning to the fixing section by the shape of the switching guide, and instead is fed to the paper exit section. As a result, the paper is exited face down.

2. Signals

a. Input signals

(1) PS1 SIG (PS1 to PRDB)
Paper passage detection signal at the paper exit section.
This signal becomes [H] when paper is detected.

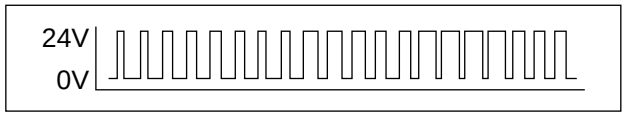
(2) PS SIG (PS28 to PRDB)
Paper passage detection signal at the reversal roller section.
This signal becomes [L] when paper is detected.

(3) PS29 SIG (PS29 to PRDB)
Paper passage detection signal at the fixing exit section.
This signal becomes [H] when paper is detected.

(4) PS SIG (PS30 to PRDB)
Paper passage detection signal at the paper exit reversal roller section.
This signal becomes [L] when paper is detected.

b. Output signals

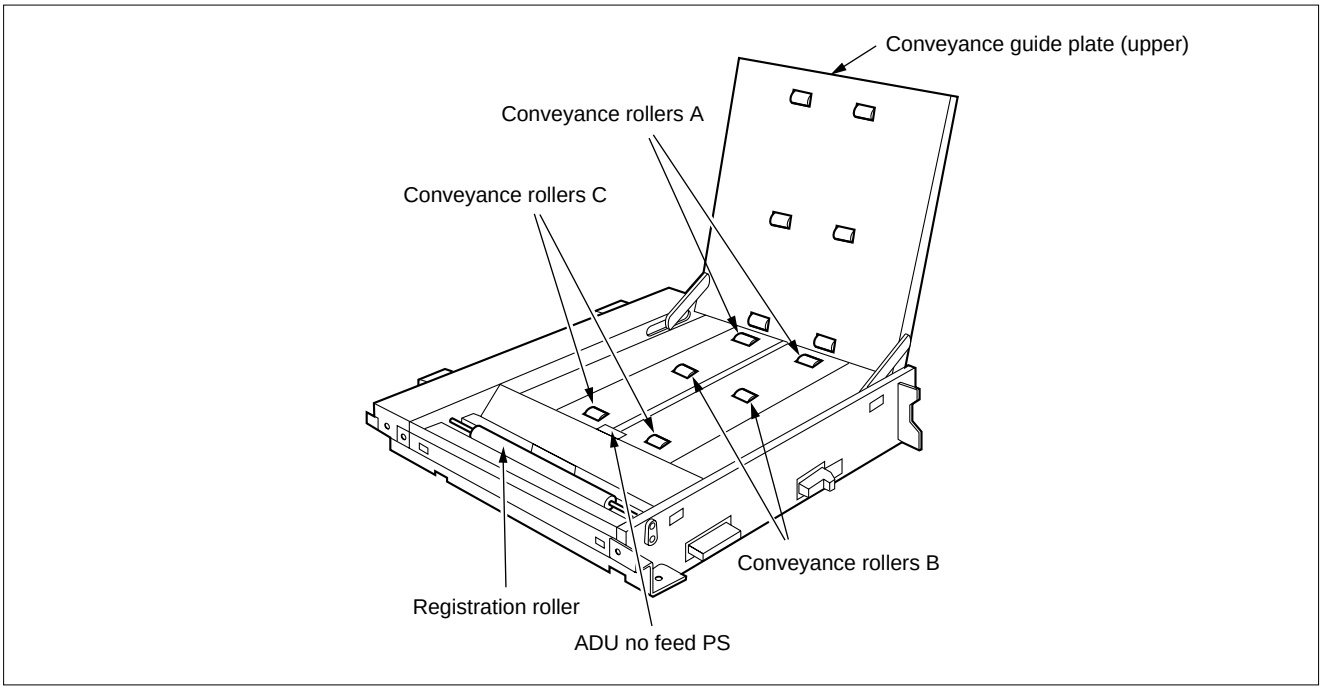
(1) A, $\overline{A}$, B, $\overline{B}$ (PRDB to M12)
M12 (reversal paper exit) ON/OFF drive signal



(2) SD5 DRIVE (PRDB to SD5)
SD5 (gate) drive control signal
[L]: SD5 ON
[H]: SD5 OFF

ADU SECTION

[1] Composition



[2] Mechanisms

Mechanisms	Methods
Paper feed*1	Non-stack selection
Paper conveyance	Conveyance roller (three) Registration roller (one)
Conveyance drive	Gear+Timing belt
Jam clearance*2	Opening/ closing of conveyance guide plate (upper), entrance guide plate (upper) and exit guide plate (upper)
Applicable sizes of paper	A3 to A5R, 8.5 x 14, 8.5 x 11 8.5 x 11R

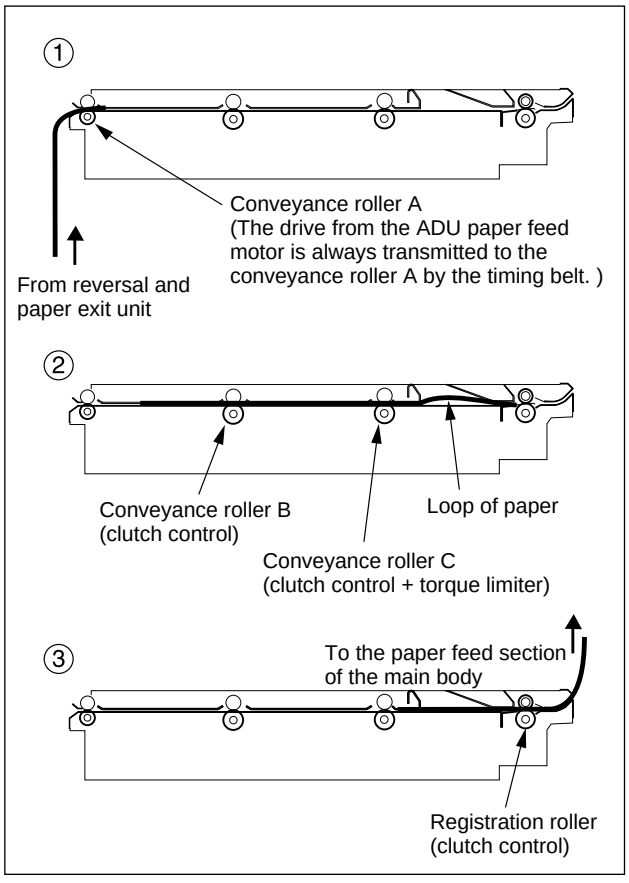
***1:** Paper feed mechanism

ADU paper feed operation is performed by the drive of the ADU paper feed motor (M501) and three clutche control. (Refer to the drive system diagram.)

(1) The paper reversed at the reversal and paper exit section is fed to the inside of the ADU by the conveyance roller A.

(2) The appropriate loop of the paper is formed by the clutch control that transmits the drive to the conveyance rollers B and C.

(3) Paper is refed to the paper feed section of the main body when the drive is transmitted to the registration roller via the registration clutch.

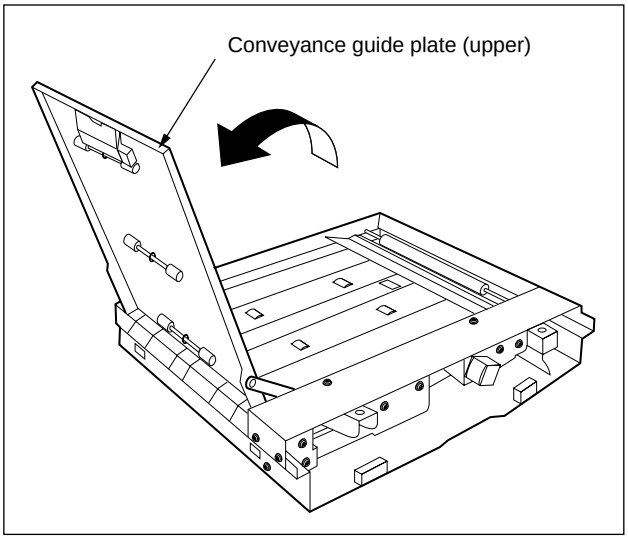

①
Conveyance roller A
(The drive from the ADU paper feed motor is always transmitted to the conveyance roller A by the timing belt.)
From reversal and paper exit unit
②
Conveyance roller B
(clutch control)
Loop of paper
Conveyance roller C
(clutch control + torque limiter)
③
To the paper feed section of the main body
Registration roller
(clutch control)

***2:** Jam clearance mechanism

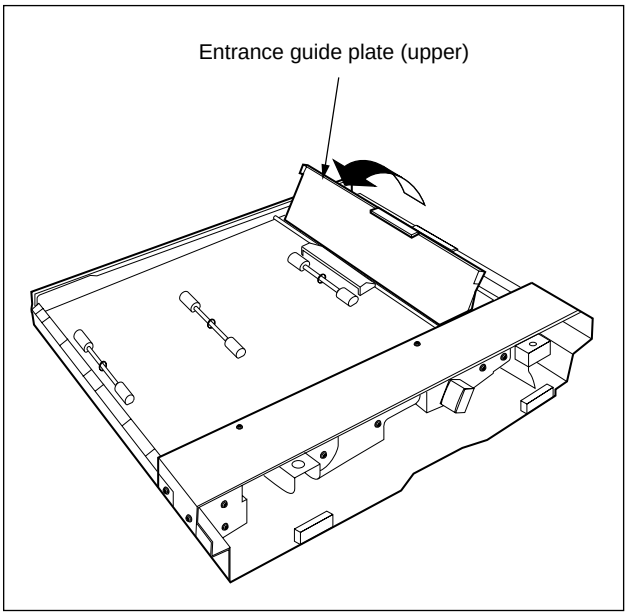
There is a jam clearance mechanism on each of the conveyance section, paper feed section and paper exit section.

Jammed paper can be removed by opening and closing the conveyance guide plate (upper), entrance guide plate (upper) and exit guide plate (upper), depending upon where the jam occurres.

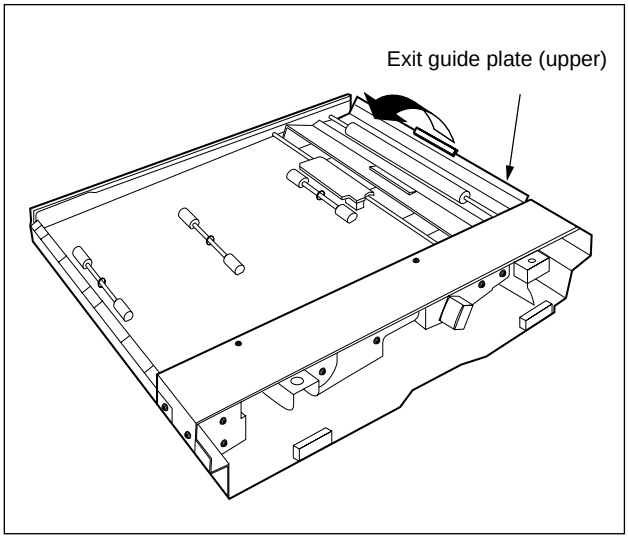
- **Conveyance section**



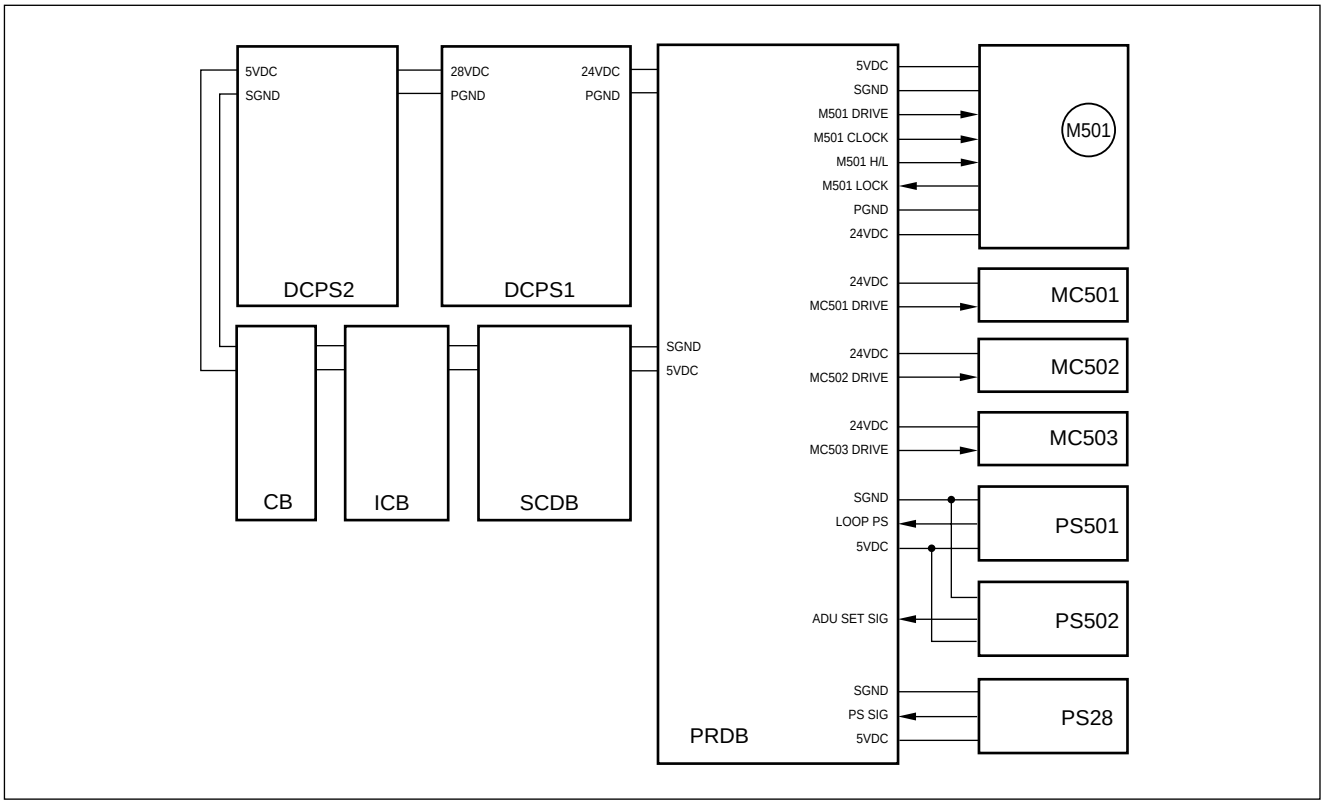
- **Paper feed section**



- **Paper exit section**



[3] Conveyance Control



Conveyance takes place as a result of the transmission of drive power from M501 (ADU paper feed) to conveyance roller A, from MC503 (ADU feed) to conveyance roller B, from MC502 (ADU loop) to roller C, and from MC501 (ADU restart) to the registration roller.
MC501, MC502 and MC503 are driven by the PRDB (printer drive board).
Related signals are PS501 (ADU no feed), PS502 (ADU registration) and PS28 (reversal detection 1).

1. Operation

a. Paper feed control

When PS28 is turned OFF by the paper that is reversed in the paper reversal and exit section, M501 goes ON, and conveyance roller A rotates, causing the paper to be conveyed to the ADU. Subsequently, MC503 goes ON, causing paper exit roller B to rotate and feed the paper to the ADU.
MC503 goes OFF after the specified time from when PS501 detects the leading edge of the paper and goes ON. As a result, the paper strikes the registration roller, causing an appropriate paper loop to be formed.
MC502 goes ON after the specified time from when PS28 goes OFF. As a result, conveyance roller C is driven so as to assist in the formation of an appropriate loop. MC502 goes OFF while MC503 goes OFF.

b. Re-start control

MC501 goes ON after the specified time from when PS501 goes ON, causing the paper to be re-started and conveyed to the 2nd paper feed section. MC501 goes OFF after the specified time from when it goes ON.

c. M501 ON/OFF timing

(1) ON timing
When PS28 goes OFF

(2) OFF timing
When MC501 goes OFF when the last sheet of paper re-starts

2. Signals

a. Input signals

(1) LOOP PS (PS501 to PRDB)
Jammed paper detection signal at entrance of ADU conveyance section.
This signal becomes [L] when paper is detected.

(2) ADU SET SIG (PS502 to PRDB)
Jammed paper detection signal at inside of ADU conveyance section.
This signal becomes [L] when paper is detected.

(3) PS SIG (PS28 to PRDB)
Paper passage detection signal at the reversal roller section.
This signal becomes [L] when paper is detected.

(4) M501 LOCK (M501 to PRDB)
M501 (ADU paper feed) rotational status detection signal
This signal becomes [L] when M501 reaches the set speed.

b. Output signals

(1) MC501 DRIVE (PRDB to MC501)
MC501 (ADU restart) ON/OFF drive signal
[L]: MC501 ON
[H]: MC501 OFF

(2) MC502 DRIVE (PRDB to MC502)
MC502 (ADU loop) ON/OFF drive signal
[L]: MC502 ON
[H]: MC502 OFF

(3) MC503 DRIVE (PRDB to MC503)
MC503 (ADU feed) ON/OFF drive signal
[L]: MC503 ON
[H]: MC503 OFF

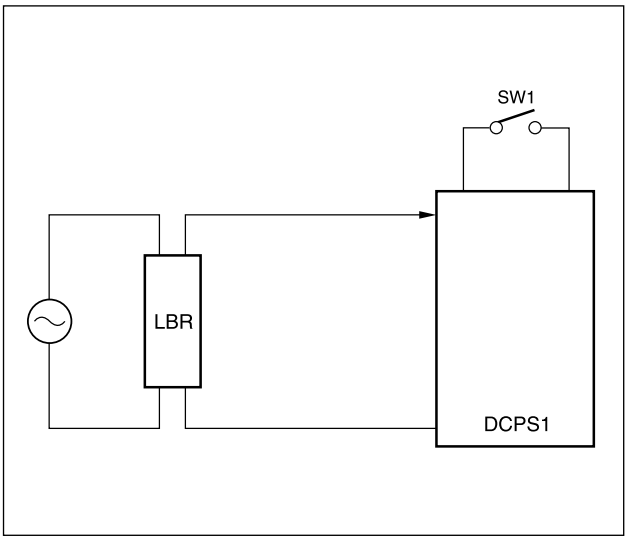
(4) M501 H/L (PRDB to M501)
M501 rotational speed control switching signal
[L]: High speed
[H]: Low speed

(5) M501 CLK (PRDB to M501)
M501 rotational speed control reference clock signal

(6) M501 DRIVE (PRDB to M501)
M501 drive control signal
[L]: M501 ON
[H]: M501 OFF

OTHER KINDS OF CONTROL

[1] Parts Through Which Current Flows When the Main Switch is Turned OFF



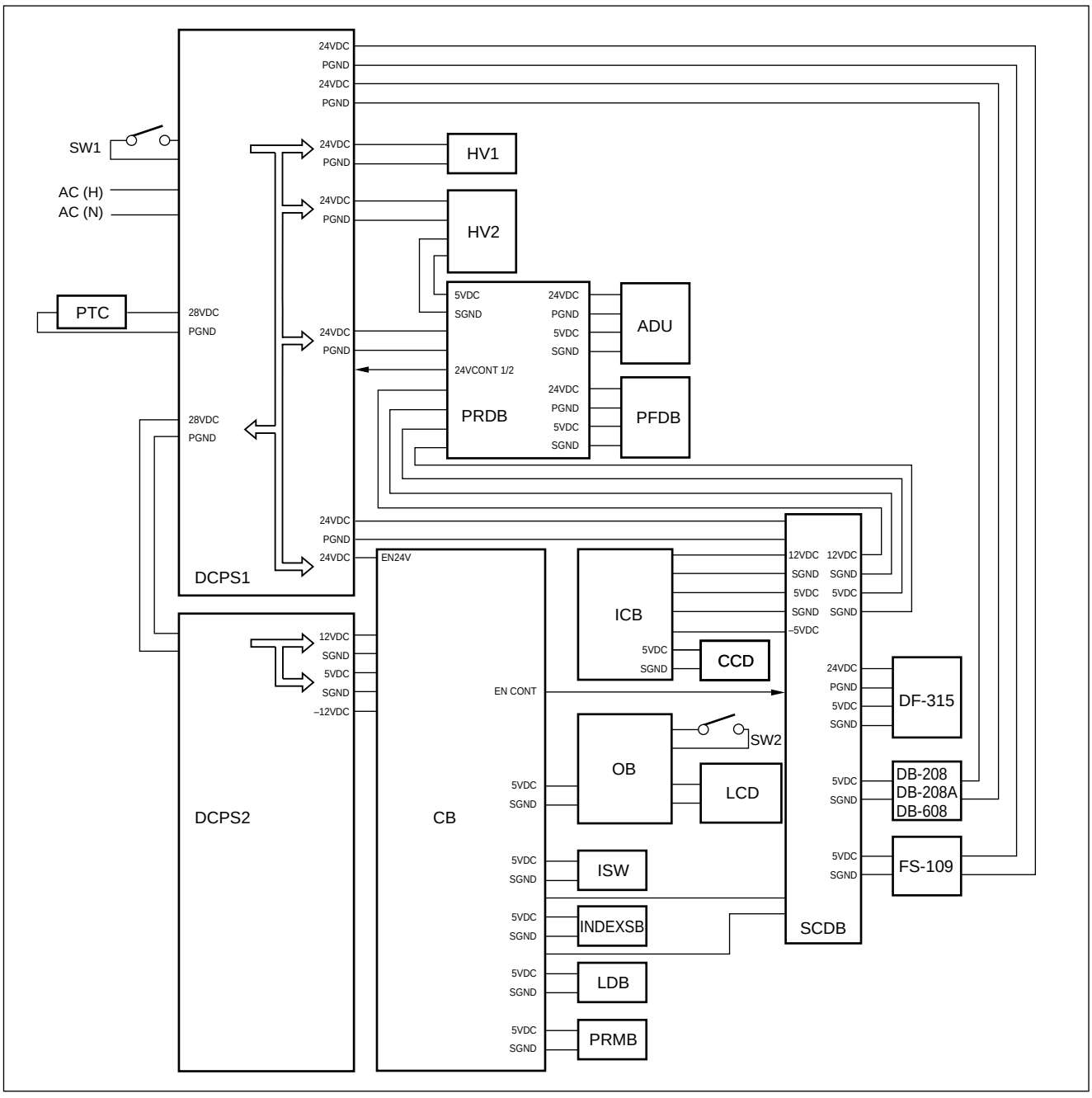
1. Operation

Current flows through the following parts if the power cord is plugged into the power outlet, regardless of whether or not SW1 (main power) is ON or OFF.

a. LBR (leak breaker)

If an internal part short circuits, causing a current of more than 20 A to flow, the breaker goes OFF, cutting off the power to the machine.

[2] Parts That Operate When the Power Switch is Turned ON



1. Operation

a. Parts that operate when the SW1 (main power) is turned ON

- · DCPS1 (DC power supply 1)
- · DCPS2 (DC power supply 2)
- · CB (control board)
- · OB (operation board)
- · PTC (PTC heater)
- · KRDS
- · PRMB (parameter memory board)
- · IP-431 related option

When the SW1 is turned ON, the AC supply voltage is applied to the DCPS1. As a result, the DCPS1 supplies 28 VDC voltage to the DCPS2 and PTC. DCPS2 supplies 12 VDC, -12 VDC, and 5 VDC power supply voltages to the CB from the 28 VDC power supply. The 5 VDC power supply voltage are supplied to the OB via the CB.

b. Parts that operate when the SW2 (sub power) is turned ON

· SCDB (scanner drive board)

· ICB (image control board)

· PRDB (printer drive board)

· Options

If SW2 is turned ON while SW1 (main power) is ON, the drive signal from the DC/DC converter is sent from the CB to the SCDB and 5 VDC and 12 VDC power supply voltages are generated inside the SCDB.

As a result, all of the 5 VDC and 12 VDC power supply voltages are supplied to the ICB, the 5 VDC and 12 VDC power supply voltages are supplied to the PRDB, and the 5 VDC power supply voltage is supplied to the control board of each option.

Subsequently, a control signal is sent from the PRDB to DCPS1 (DC power supply 1) to generate the 24 VDC power supply. The 24 VDC power supply generated inside DCPS1 is supplied to each drive board and option, the initial operation performs.

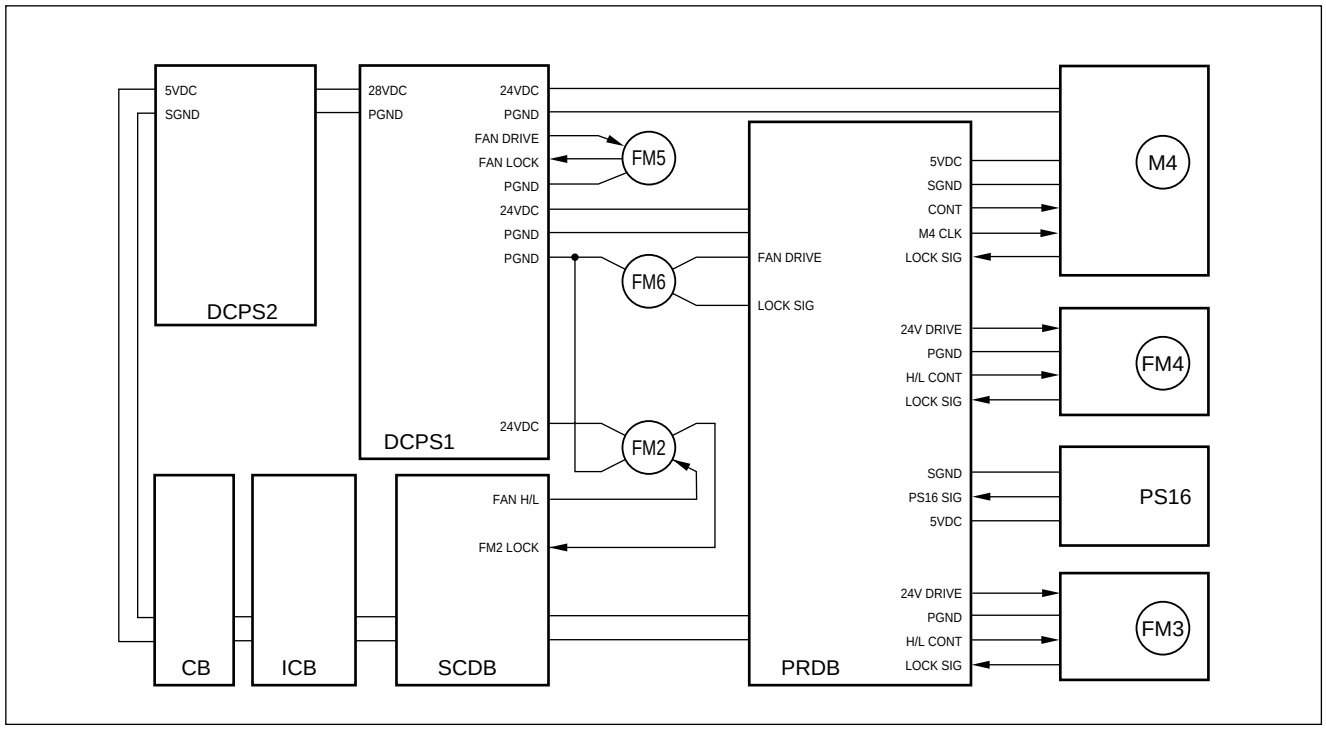
2. Signals

a. Output signals

(1) EN CONT (CB to SCDB)
DC/DC converter drive signal in SCDB
[L]: main power ON

(2) 24VDC CONT 1/2 (PRDB to DCPS1)
24VDC power generation signal
[L]: main power ON

[3] Fan Control



The SCDB (scanner drive board) drives FM2 (scanner cooling). The PRDB (printer drive board) drives FM3 (main body cooling), FM4 (conveyance suction) and FM6 (polygon cooling). The DCPS1 (DC power supply 1) drives FM5 (DCPS cooling).

1. Operation

24 V DC motor is used for each cooling fan.

a. Operation of FM2

During idling: Low speed rotation
During a copy operation: High speed rotation

b. Operation of FM3

During idling: Low speed rotation
During a copy operation: High speed rotation

c. Operation of FM4

FM4 goes ON in syncronism with M4 (drum), and it goes OFF again after the specified time from PS16 (registration) going OFF.

d. Operation of FM5

During idling: Low speed rotation
During a copy operation: High speed rotation

e. Operation of FM6

When M5 (polygon) is ON: fixed speed rotation

2. Signals

a. Input signals

(1) FM2 LOCK (FM2 to SCDB)
FM2 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

(2) LOCK SIG (FM3 to PRDB)
FM3 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

(3) LOCK SIG (FM4 to PRDB)
FM4 rotation error detect signal
[L]: Normal rotation
[H]: Stop or rotation error

(4) FAN LOCK (FM5 to DCPS1)
FM5 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

(5) LOCK SIG (FM6 to PRDB)
FM6 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

b. Output signals

(1) FAN H/L (SCDB to FM2)
FM2 (scanner coding) rotational speed switching signal
[L]: High speed
[H]: Low speed

(2) 24V DRIVE (PRDB to FM3)
FM3 (main body coding) drive control signal

(3) H/L CONT (PRDB to FM3)
FM3 rotational speed switching signal
[L]: High speed
[H]: Low speed

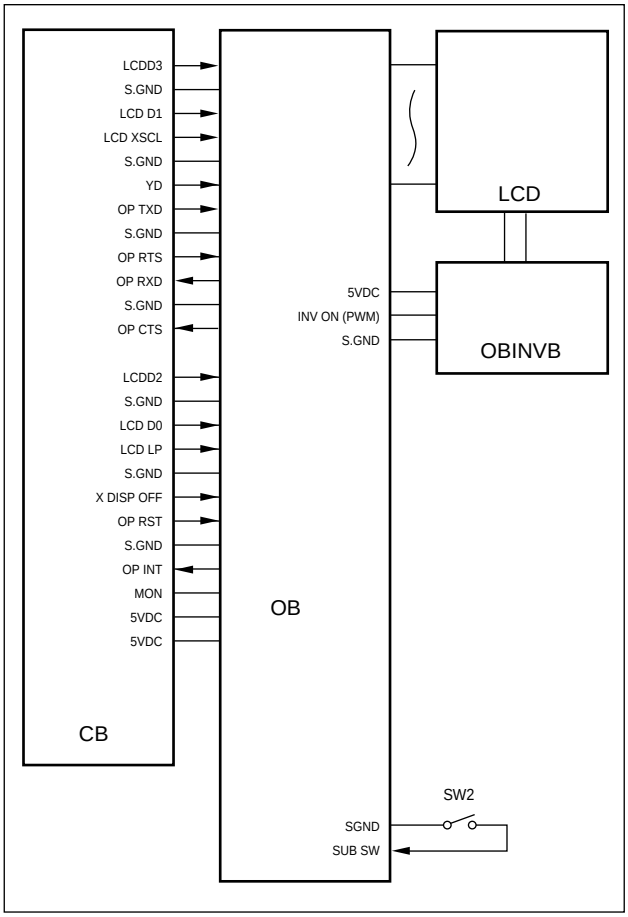
(4) 24V DRIVE (PRDB to FM4)
FM4 (conveyance suction) drive control signal
[L]: FM4 OFF
[H]: FM4 ON

(5) FAN DRIVE (DCPS1 to FM5)
FM5 (DCPS cooling) drive signal

(6) FM5 CONT (PRDB to DCPS1)
FM5 drive control signal
[L]: FM5 ON
[H]: FM5 OFF

(7) FAN DRIVE (PRDB to FM6)
FM6 (polygon cooling) draiver signal

[4] Operation Panel Control



The operation panel consists of OB (operation board) and the LCD (display board). On the display board is mounted an LCD. The LCD has a backlight which is powered by the OBINVB (OB inverter), and touch switches which are linked to the displayed contents.

Control of the operation panel is done by OB based on serial data output from CB (control board).

1. Operation

a. LED ON operation

The LEDs on OB are turned ON and OFF by the CPU in the OB.
The CPU in the OB is turned ON and OFF according to serial data from the CB.

b. LCD (display board) control

(1) LCD display operation
The LCD is driven by 4-bit parallel data that is input from the CB (control board) via the OB (operation board).

(2) Backlight ON operation
The LCD has a backlight (cold cathode tube) to facilitate viewing. The backlight is driven by the OB INVB (OB inverter), and controlled by OB.

(3) Touch switch control
The LCD has touch switches, enabling you to directly select items indicated by the display. These touch switches are controlled by OB.

c. SW2 (sub power) control

If SW2 is turned ON while SW1 (main power) is ON, power is supplied to each load.
If SW1 is OFF, this switch does not function.

2. Signals

a. Input signals

(1) OP RXD (OB to CB)
Serial data which informs CB of the operation status of OB.

(2) OP CTS (OB to CB)
Signal which indicates that data is being sent from OB to CB.
When this signal is [H], CB stops sending the OB TXD signal.

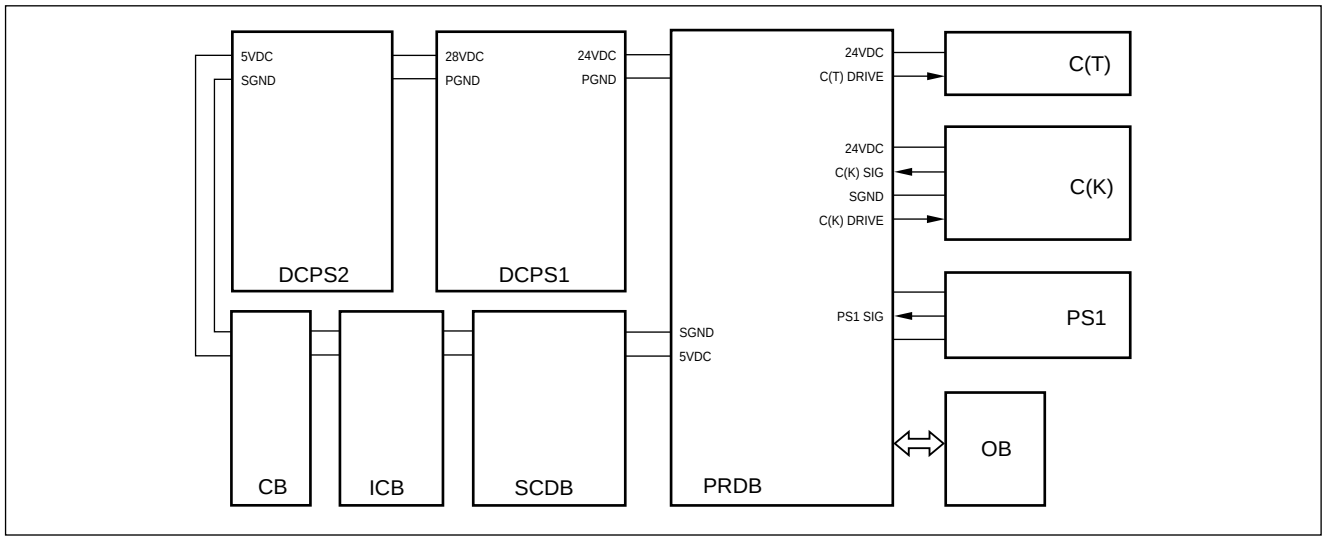
(3) SUB SW (SW2 to OB)
This signal becomes [L] when the SW2 is turned ON.

b. Output signals

(1) OP TXD (CB to OB)
Serial data which informs OB of the operation status of the machine that is known to CB.

(2) OP RTS (CB to OB)
Signal which indicates that data is being sent from CB to OB.
When this signal is [H], OB stops sending the OB RXD signal.

[5] Counter Control



This machine contains the following counters.

· C(T) (total counter)

· C(K) (key counter)

These counters are controlled by the CB (control board).

Related signal is PS1 (paper exit).

1. Operation

This machine counts copies by means of two software counters.

(1) Paper feed counter
The count increases by 1 each time the 1st paper feed goes ON.

(2) Paper exit counter
The count increases by 1 each time PS1 goes ON/ OFF.

<Operation of each counter>

a) Copy quantity display counter on OB (operation board)

Normal	Paper jam
Indicates the count on the paper feed counter.	Indicates the count on the paper exit counter.

2. Signals

a. Input signal

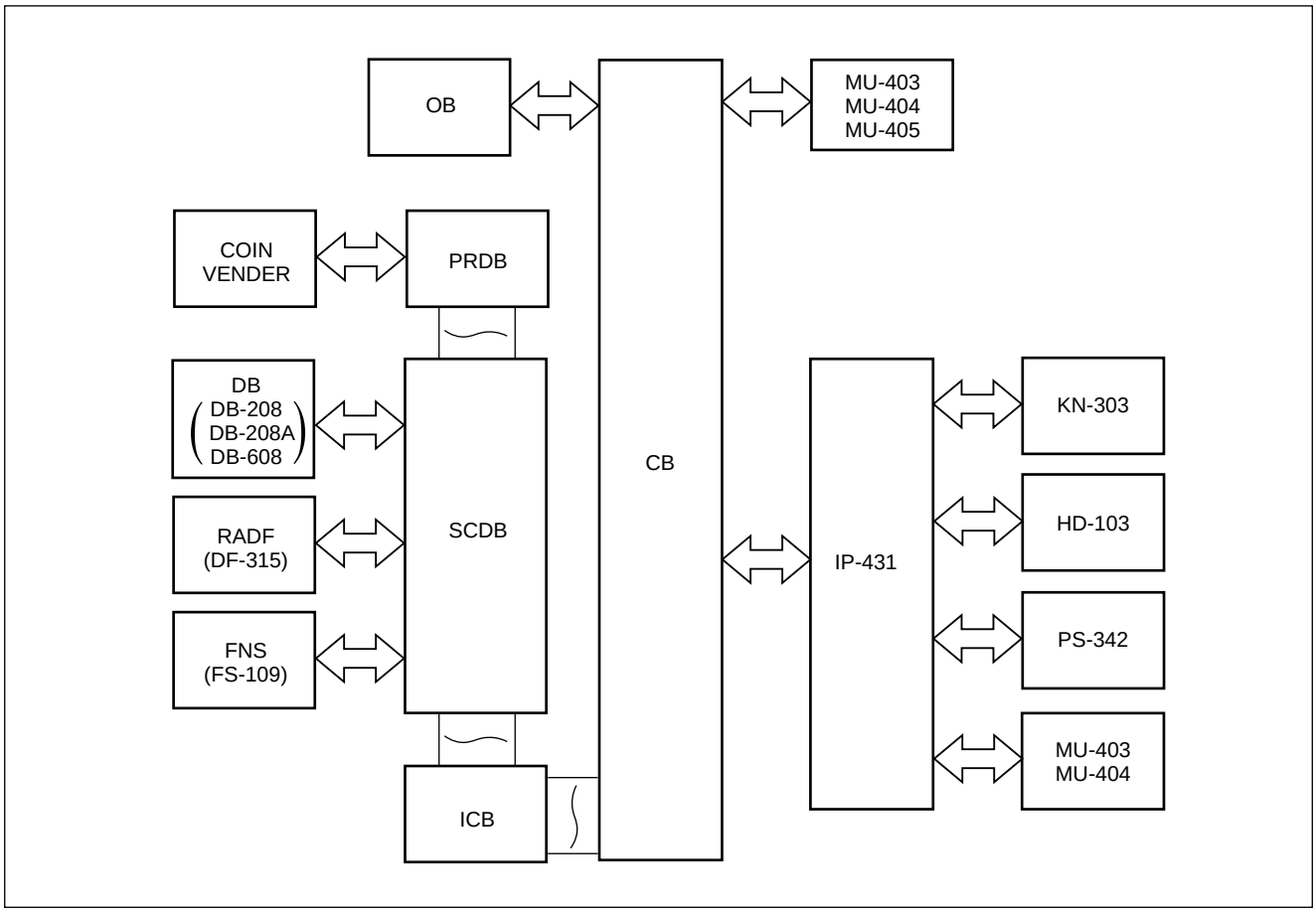
(1) C(K) SIG (C(K) to CB)
This signal informs the CB that the count on C(K) has increased.

b. Output signals

(1) C(T) DRIVE (CB to C(T))
C(T) drive signal.
When this signal changes from [L] to [H], the count of C(T) increases by 1.

(2) C(K) DRIVE (CB to C(K))
C(K) drive signal
When this signal changes from [L] to [H], the count of C(K) increases by 1.

[6] Option Control



In this machine, all options (except for coin vender) are controlled by the CB (control board) and ICB (image control board).

1. Operation

RADF, FNS and DB contain a CB. Data is exchanged between each CB and the main body ICB.
Coin vender is controlled by the PRDB (printer drive board).

<Operation/output timing of coin vender signal>

CN No.	Pin No.	Signal name	Description	Output timing	Kind of signal
35	1	DC24V	Key counter power source	Always	24 V, 300 mA
	2	C(K) SIG	Key counter connection recognition	—	—
	3	C(K) GDN	Signal ground	—	—
	4	C(K) DRIVE	Key counter signal count up	100 ms L signal that is output after the copy is exited.	—
	5	P.GDN	Power ground	—	—
36	1	Vender Copy	"Copy in progress" signal	Output from when the Start button is pressed until the copy is exited.	Open collector 5 V, 200 mA
	2	Vender FEED	Paper feed signal	100 ms L signal that is synchronized with the main body tray/DB	
	3	Paper size 0	Paper size signal	Signal output after paper size is altered.	
	4	Paper size 1			
	5	Paper size 2			
	6	Paper size 3			
	7	Vender two-sided copy	Two-sided copy select signal	Signal output only when duplex copy mode is selected.	
	8	CPF SIG 0	CPF mode select signal	Signal output after copy mode or printer mode is selected.	
	9	CPF SIG 1			
	10	P.GND	Power ground	—	—

3

DISASSEMBLY/ASSEMBLY

This section explains how to disassemble and reassemble the machine. When disassembling and reassembling the machine, follow the precautions given below.

1. Be sure the power cord has been unplugged from the wall outlet.
2. The disassembled parts must be reassembled following the disassembly procedure in reverse unless otherwise specified.
3. Care should be taken not to lose small parts. Care should also be taken not to install machine parts in wrong places.
4. Do not operate the machine before installing all the disassembled parts completely.
5. Removal of some screws is prohibited in this section. Never loosen them.

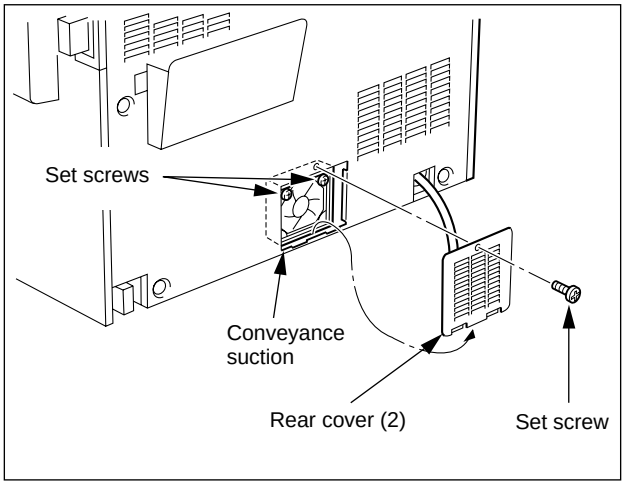
EXTERNAL SECTION

[1] Replacing the Ozone Filter

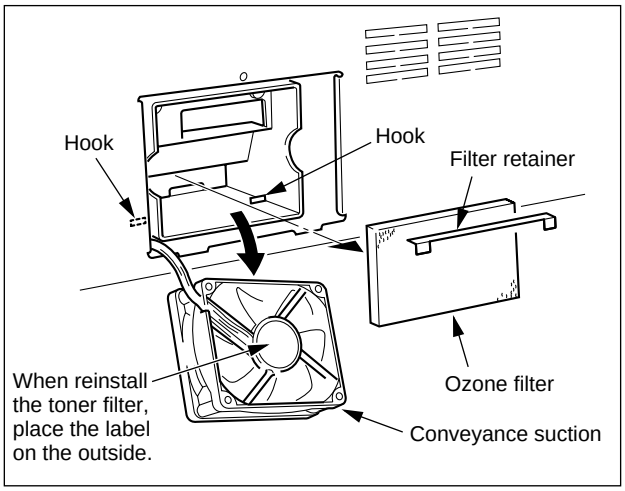
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

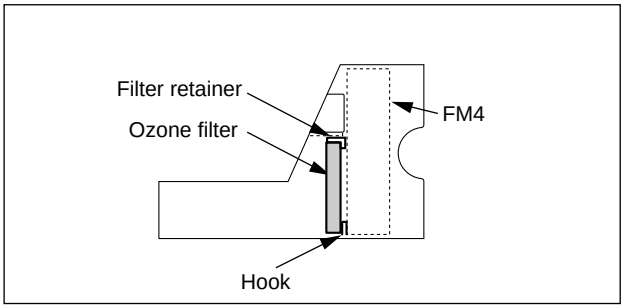
(1) Remove the one set screw, then remove the rear cover (2).
(2) Remove the two set screws holding the conveyance suction (FM4).



(3) Pull out the conveyance suction towards you. Do not strain the wires during this process.
(4) Replacing the ozone filter.



(5) Reinstall the ozone filter in the opposite sequence to removal.



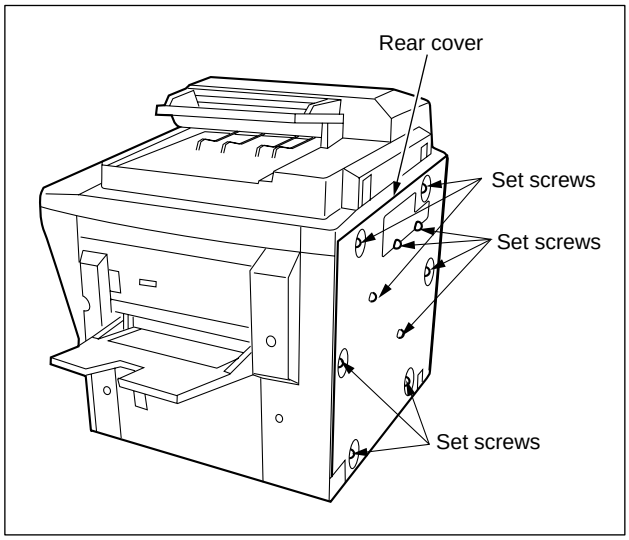
Caution 1: When installing the ozone filter, ensure that the hook is at the front, as shown in the figure.

Caution 2: Be sure to install the filter retainer.

[2] Removing and Reinstalling the Rear Cover

a. Procedure

(1) Remove the ten set screws, then remove the rear cover.

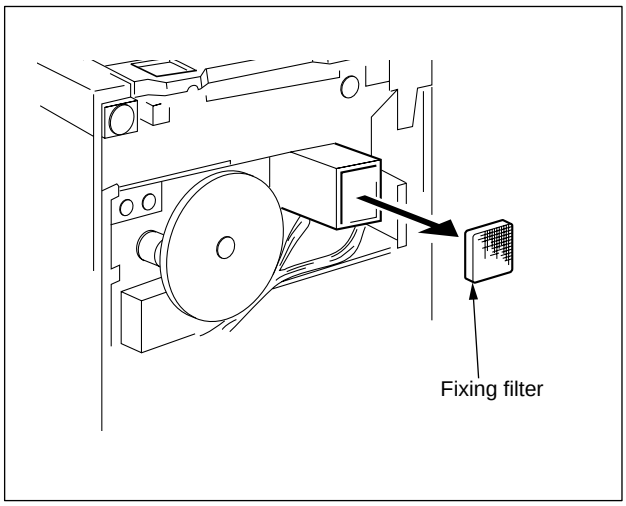


(2) Reinstall the rear cover in the opposite sequence to removal.

[3] Replacing the Fixing Filter

a. Procedure

(1) Remove the rear cover.
(2) Replacing the fixing filter.

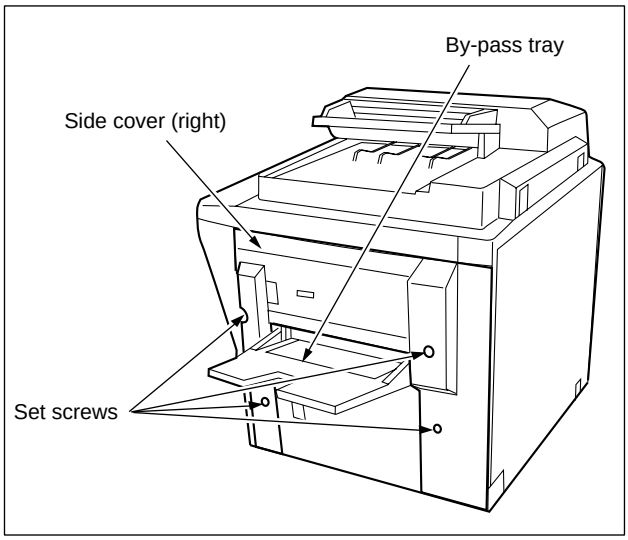


(3) Reinstall the fixing filter in the opposite sequence to removal.

[4] Removing and Reinstalling the Side Cover (right)

a. Procedure

(1) Pull out the ADU and tray1, and open the front door.
(2) Open the by-pass tray.
(3) Loosen the four set screws, then remove the side cover (right).



(4) Reinstall the side cover (right) in the opposite sequence to removal.

DRIVE SECTION

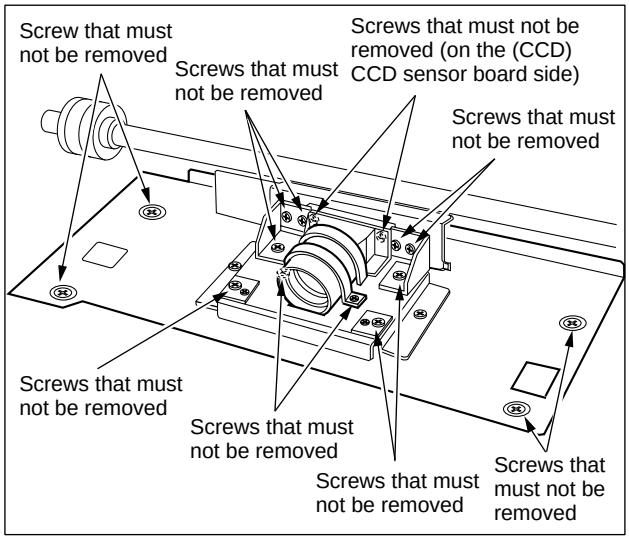
[1] Disassembly and Reassembly

Caution : Disassembly and reassembly of the drive section is not made in the normal service.

READ SECTION

[1] Screws That Must Not Be Removed

a. The 16 set screws of the CCD unit


Screw that must not be removed
Screws that must not be removed
Screws that must not be removed (on the (CCD) CCD sensor board side)
Screws that must not be removed
Screws that must not be removed
Screws that must not be removed
Screws that must not be removed
Screws that must not be removed

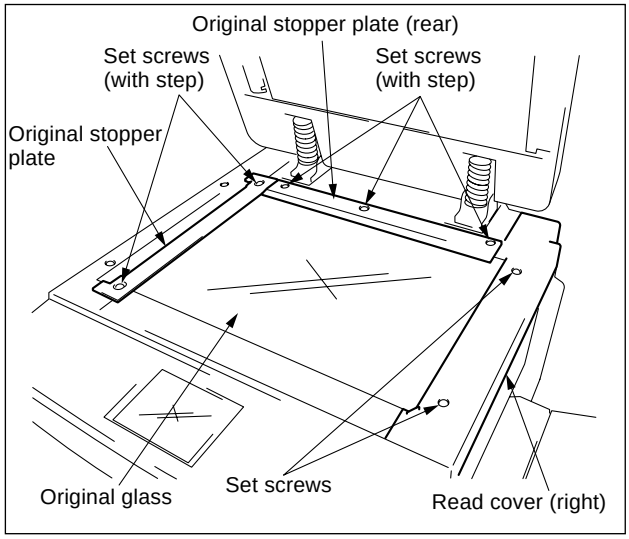
[2] Removing and Reinstalling the CCD Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

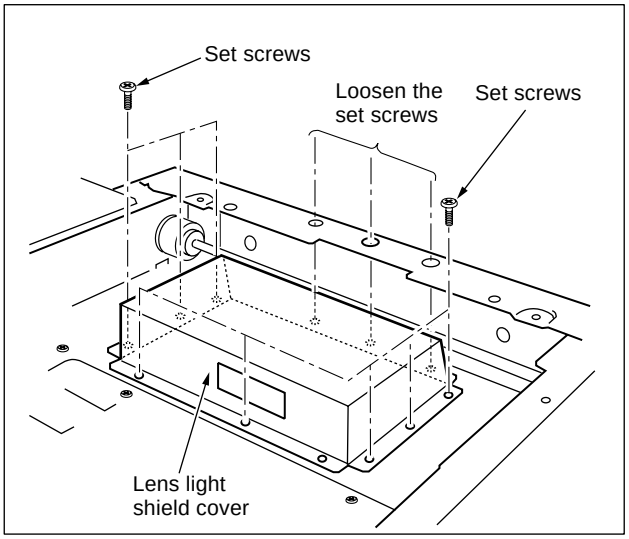
Caution: Be sure to perform image quality adjustment after installing the CCD unit. (For details, refer to "Adjustment section" in Field Service.)

a. Procedure

(1) Remove the two set screws (with step), then remove the original stopper plate.
(2) Remove the two set screws, then remove the read cover (right).
(3) Remove the three set screws (with step), then remove the original stopper plate (rear).
(4) Remove the original glass.

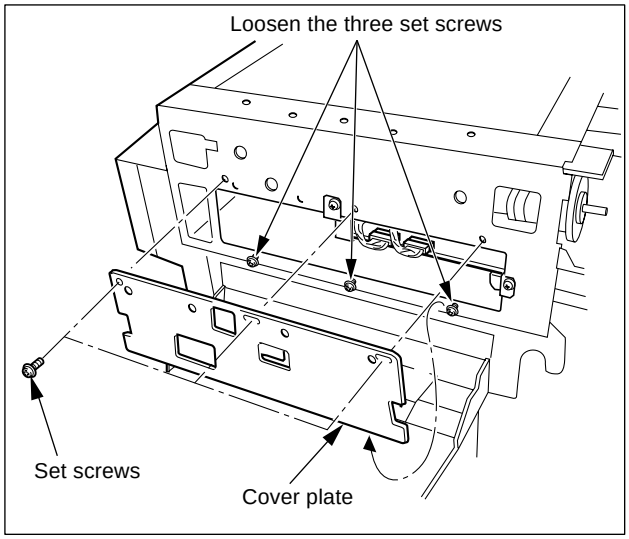


(5) Loosen the three set screws and remove the nine set screws, then remove the lens light shield cover.

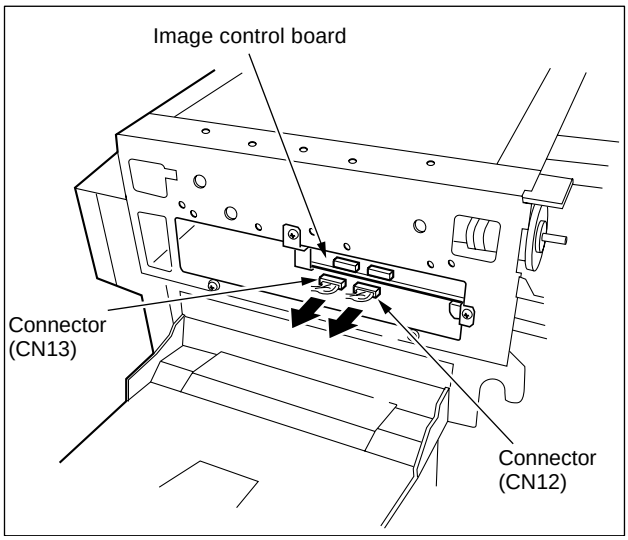


(6) Remove the side cover (right).
(Refer to “External section”)

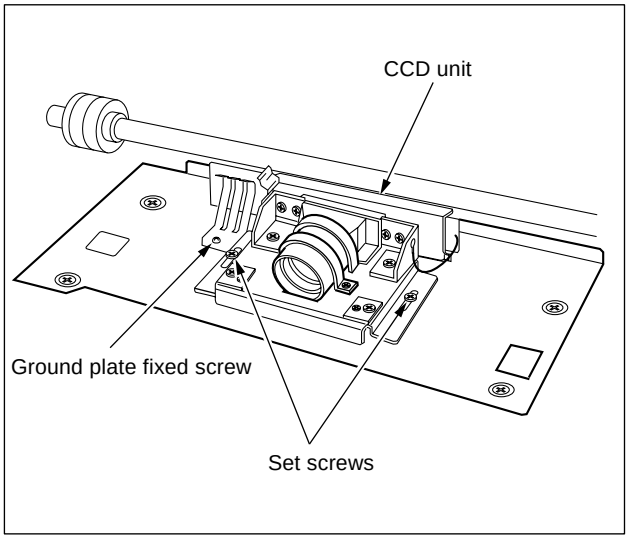
(7) Loosen the three lower set screws and remove the three upper set screws, then remove the cover plate.



(8) Disconnect the two connectors (CN12,13) from the image control board.



(9) Remove the two set screws and loosen ground plate fixed screw, then remove the CCD unit.



(10) Reinstall the CCD unit in the opposite sequence to removal.

[3] Replacing the Exposure Lamp (L1)

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution 1: When removing the lamp terminals, be sure to hold the contact terminal.

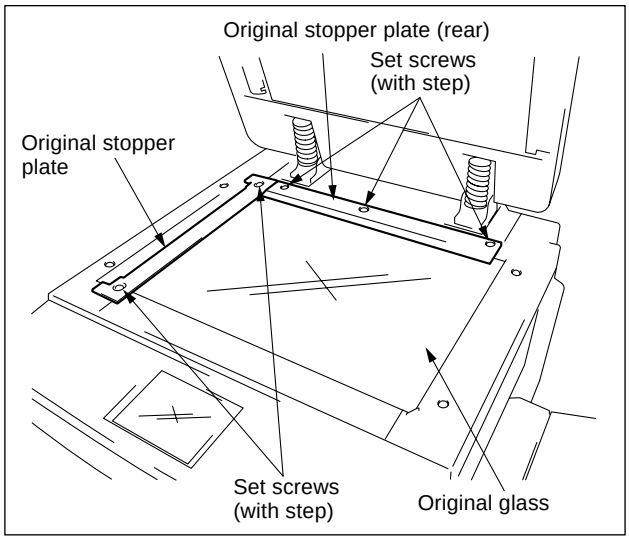
Caution 2: Never pull the cord.

Caution 3: Do not touch the glass of the L1 with bare hands.

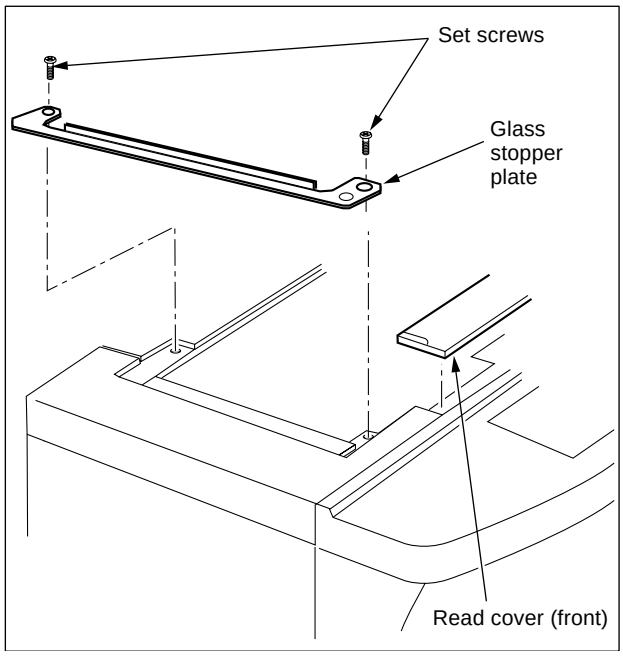
Caution 4: Check to ensure that you have not forgotten to insert a connector or install a screw, and also that a cord is not crushed.

a. Procedure

(1) Remove the two set screws (with step), then remove the original stopper plate.
(2) Remove the three set screws (with step), then remove the original stopper plate (rear).
(3) Remove the original glass.

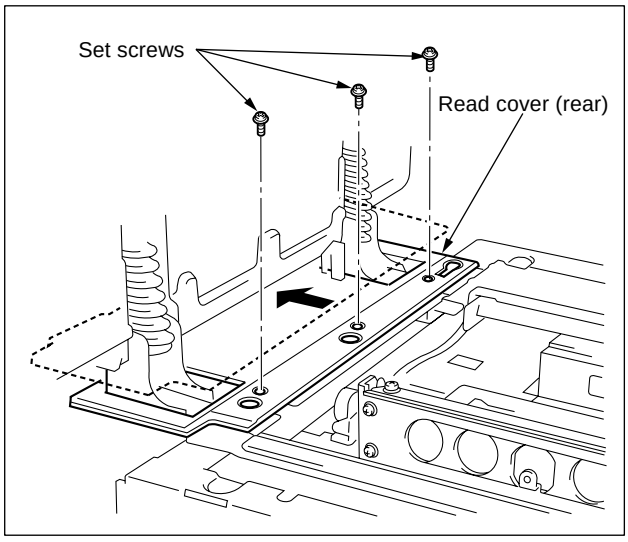


(4) Remove the read cover (front).
(5) Remove the two set screws, then remove the glass stopper plate.



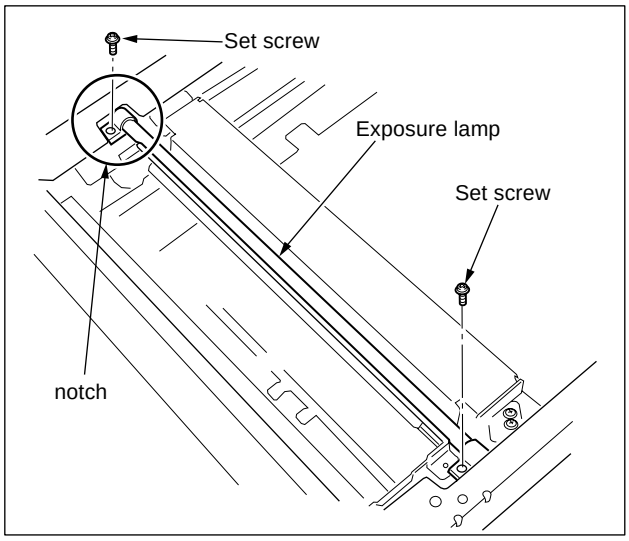
Caution: When re-installing the original stopper plate ensure that the film attached to the original glass (1) is on top of the glass stopper plate.

(6) Remove the three set screws, and move the read cover (rear) to the rear.

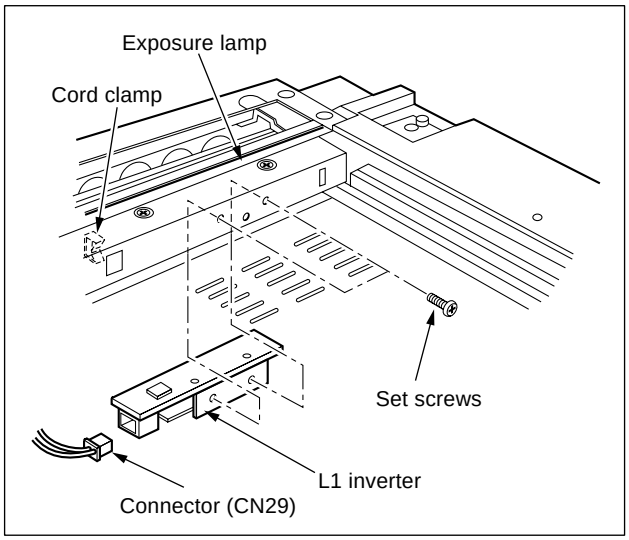


(7) Move the exposure unit to the position of the notch in the main body frame at the rear.

(8) Remove the two set screws from the exposure lamp (L1).



(9) Remove the two set screws, then remove the L1 inverter (L1 INVB).
(10) Disconnect the connector (CN29) from the L1 inverter.
(11) Remove the set screw holding the exposure lamp on the rear side, then remove the exposure lamp.



(12) Reinstall the exposure lamp in the opposite sequence to removal.

Caution: Be sure to check the image after installing the exposure lamp. (For details, refer to "Adjustment section" in Field Service.)

[4] Removing and Reinstalling the Exposure Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution 1: Never pull the cord.

Caution 2: Check to ensure that you have not forgotten to insert a connector or install a screw, and also that a cord is not crushed.

Caution 3: Use a optics position adjusting jig when installing the exposure unit.

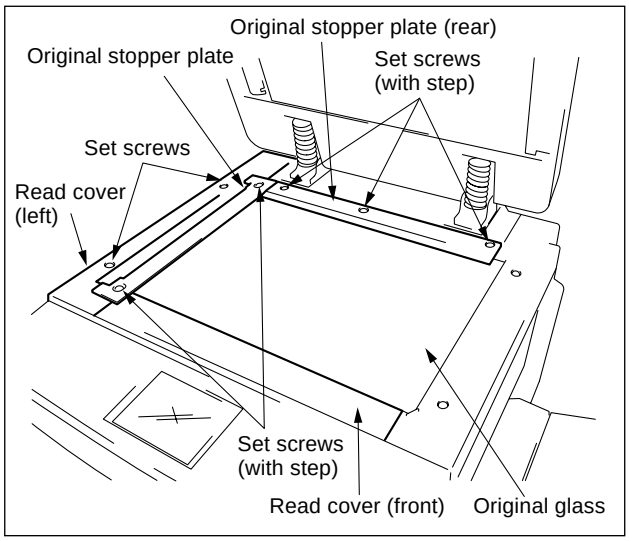
Caution 4: Be sure to perform image quality adjustment after installing the exposure unit. (For details, refer to "Adjustment section" in Field Service.)

Caution 5: When reinstalling the original stopper plate ensure that the film attached to the original glass (1) is on top of the glass stopper plate.

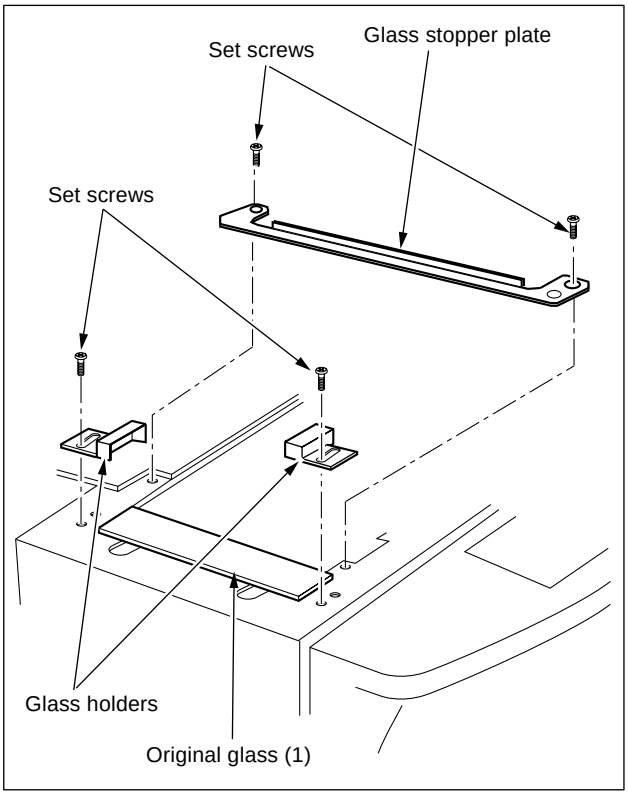
Caution 6: Before installing the original glass (1), be sure to clean it. (To prevent the image defect)

a. Removal procedure

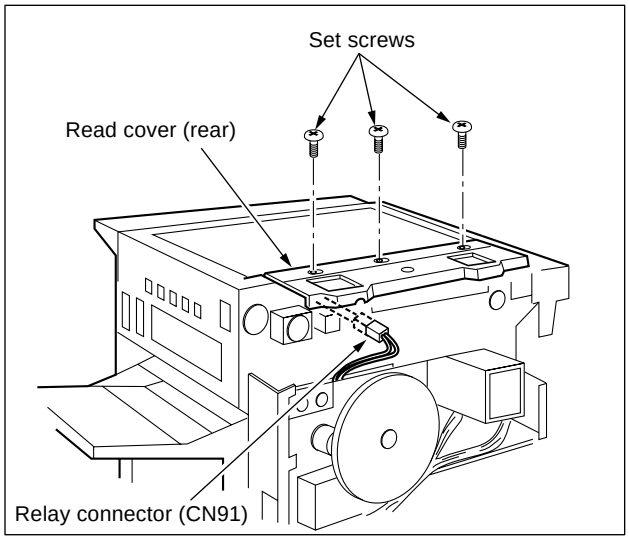
(1) Remove the two set screws (with step), then remove the original stopper plate.
(2) Remove the three set screws (with step), then remove the original stopper plate (rear).
(3) Remove the original glass.
(4) Remove the two set screws, then remove the read cover (left).
(5) Remove the read cover (front).



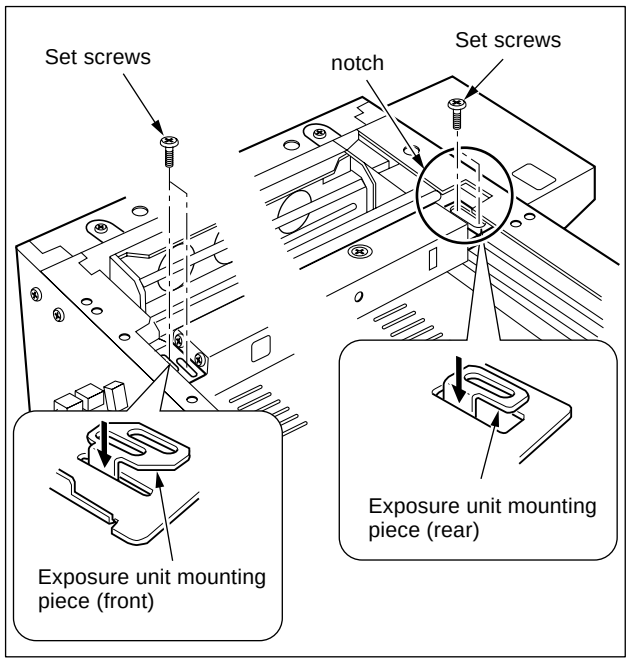
(6) Remove the two set screws, then remove the two glass holders and original glass (1).
(7) Remove the two set screws, then remove the glass stopper plate.



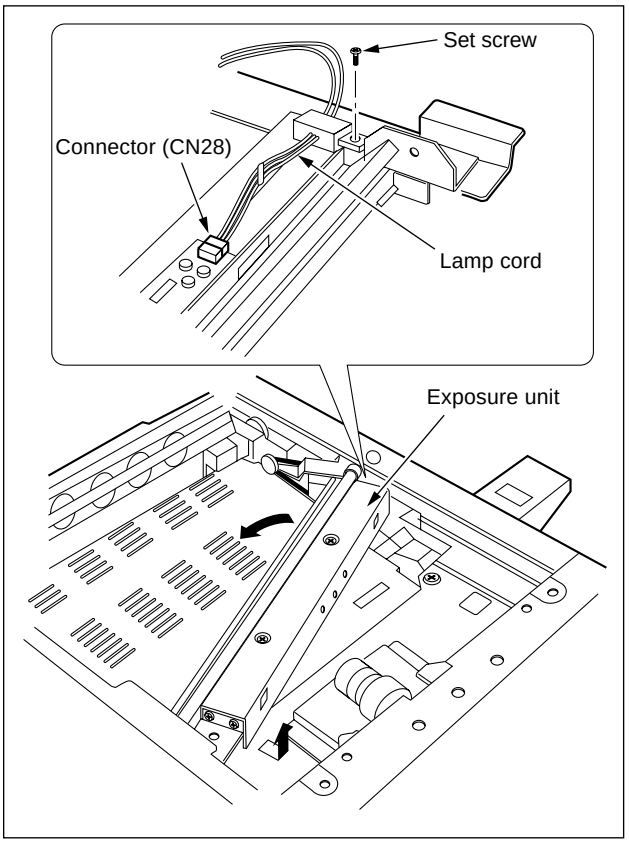
(8) Remove the ten set screws, then remove the rear cover.
(Refer to “External section”)
(9) Remove the RADF.
(Refer to the service handbook of the DF-315)
(10) Remove the three set screws, disconnect the relay connector (CN91), then remove the read cover (rear).



(11) Move the exposure unit to the position of the notch in the main body frame at the rear.
(12) Remove the four set screws each, then remove the two exposure unit mounting pieces (front and rear) from the exposure unit.

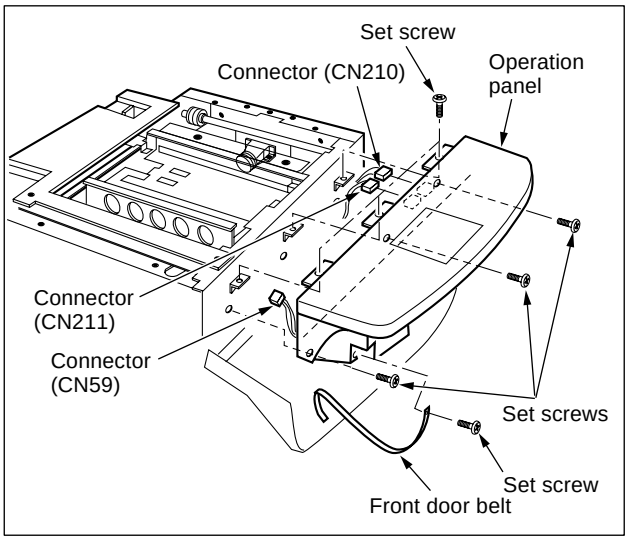


(13) Remove the exposure unit from the main body frame while rotating it to the left.
(14) Disconnect the connector (CN28) from the L1 inverter (L1 INVB).
(15) Remove the one set screw, then remove the lamp cord from the exposure unit.

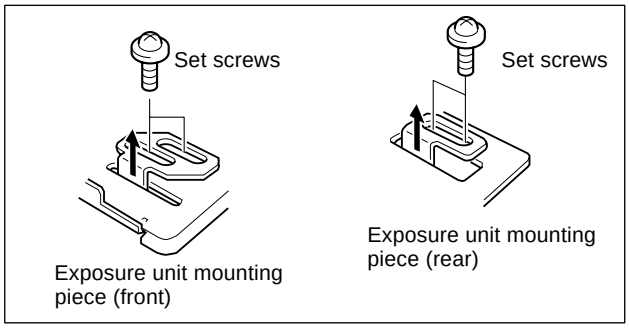


b. Reinstallation procedure

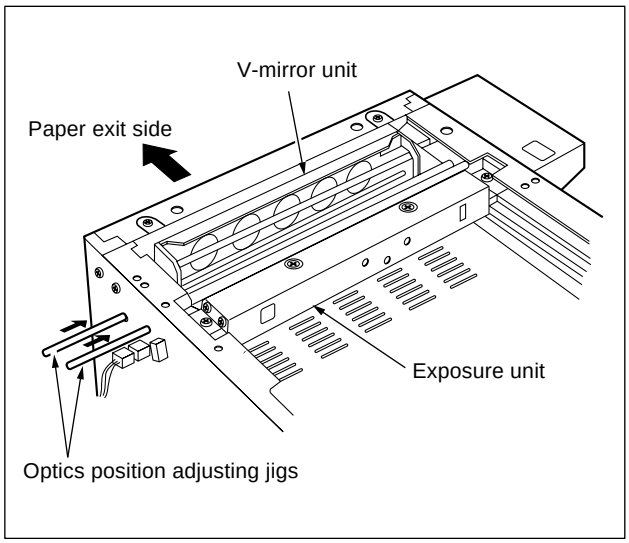
(1) Open the front door and open the toner supply unit.
(2) Remove the one set screw holding the front door belt on the left side.
(3) Remove the six set screws and disconnect the three connectors (CN59, CN210, CN211), then remove the operation panel.



(4) Install the exposure unit to the main body.
(5) Install the front and rear mounting pieces of the exposure unit in the slit of the exposure unit, then temporarily fix them with four set screws each.



(6) Move the V-mirror unit to the paper exit side, then insert the two optics position adjusting jigs into the exposure unit mounting position from the front.
At this time, pass through the optics position adjusting jigs into each unit and fasten the exposure unit and V-mirror unit.



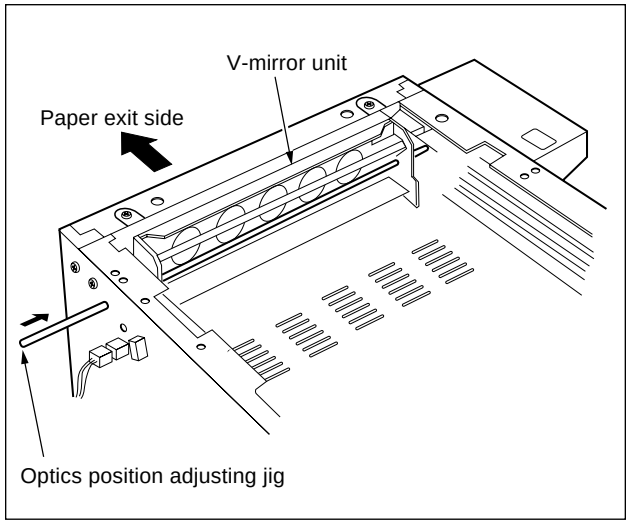
(7) Fasten the exposure unit mounting pieces (front and rear) with the four set screws.
(8) Remove the optics position adjusting jigs and install the operation panel.
(9) The reminder of the installation procedure is in the opposite sequence to removal.

[5] Removing the Optics Wire

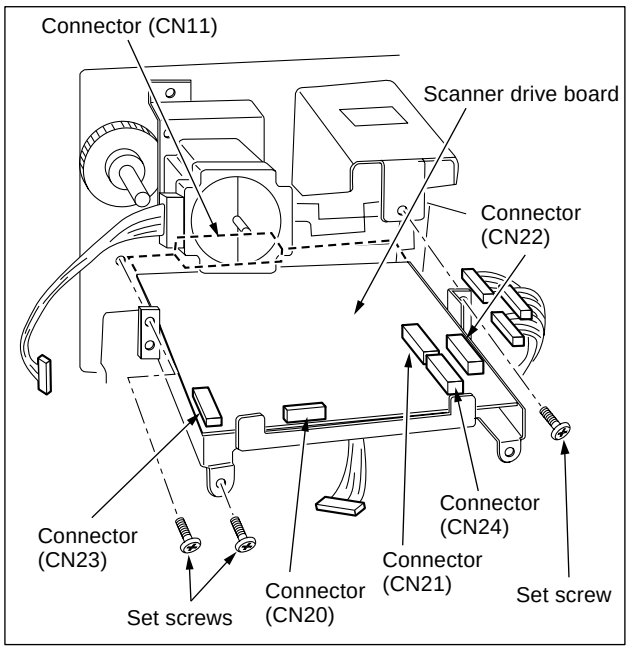
Caution: Be sure to perform image quality adjustment after replacing or re-installing the wire. (For details, refer to “Adjustment section” in Field Service.)

a. Procedure

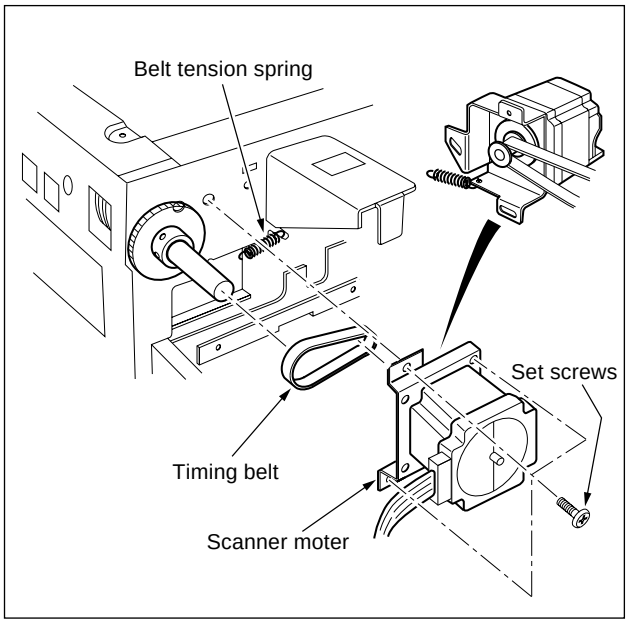
(1) Remove the exposure unit.
(2) Remove the operation panel.
(3) Move the V-mirror unit to the paper exit side, then insert the optics position adjusting jig into the V-mirror unit mounting position from the front.
At this time, pass through the optics position adjusting jig into the V-mirror unit and fasten the V-mirror unit.



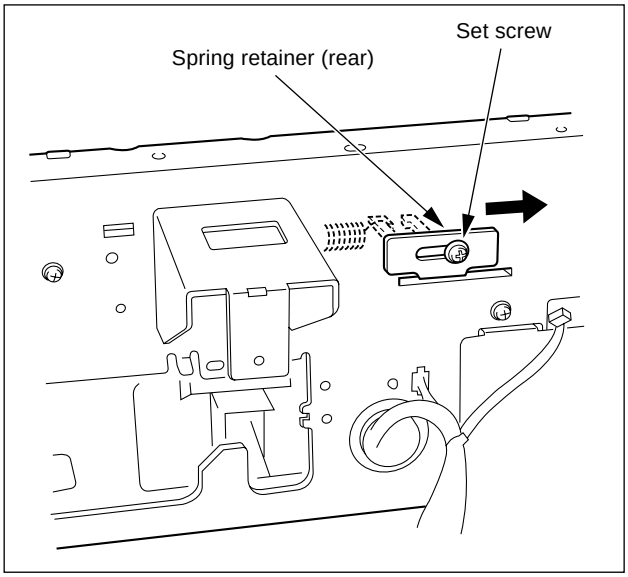
(4) Remove the rear cover, then free the wiring from the two cord clamps on the rear side of the scanner drive board (SCDB).
(5) Remove the five connectors (CN20 to CN24) and the three set screws from the scanner drive board.
(6) Pull out the scanner drive board and disconnect the connector (CN11) on the image control board, then remove the scanner drive board.
Caution: Be careful not to drop screws etc. between the boards at the rear of the main body.



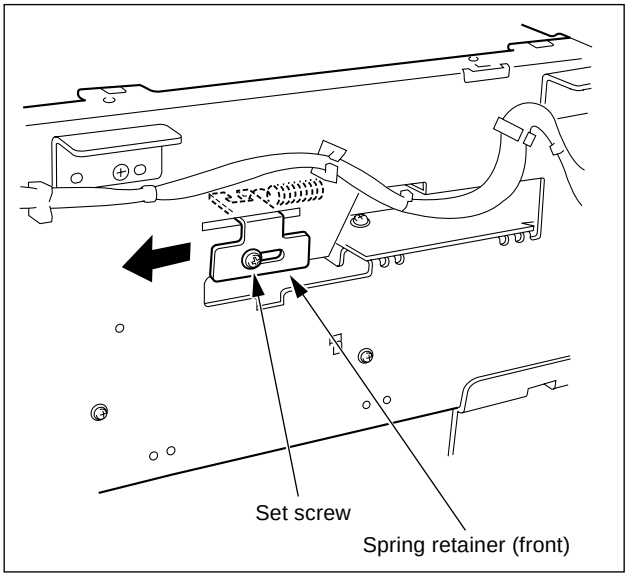
(7) Remove the three set screws and the belt tension spring, then remove the scanner motor (M2) and timing belt.



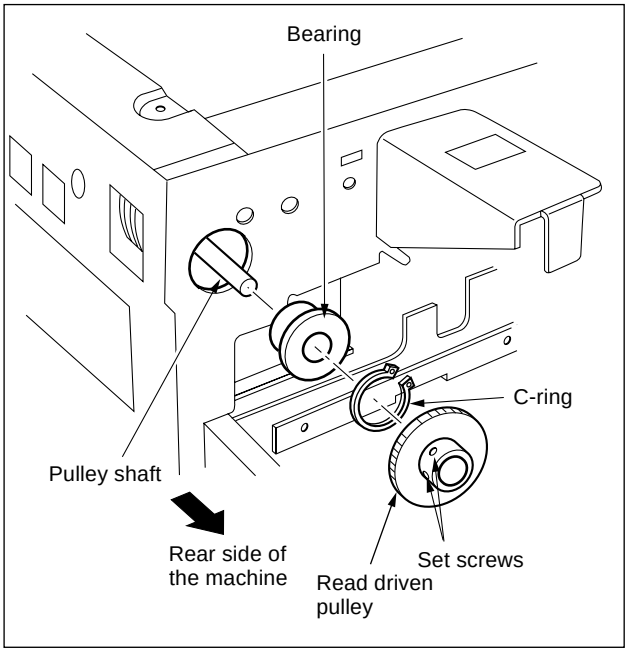
(8) Loosen the set screw holding the spring retainer (rear), slide it to the paper exit side while pressing it with a flat-blade screwdriver etc. to fix it again with the set screw.



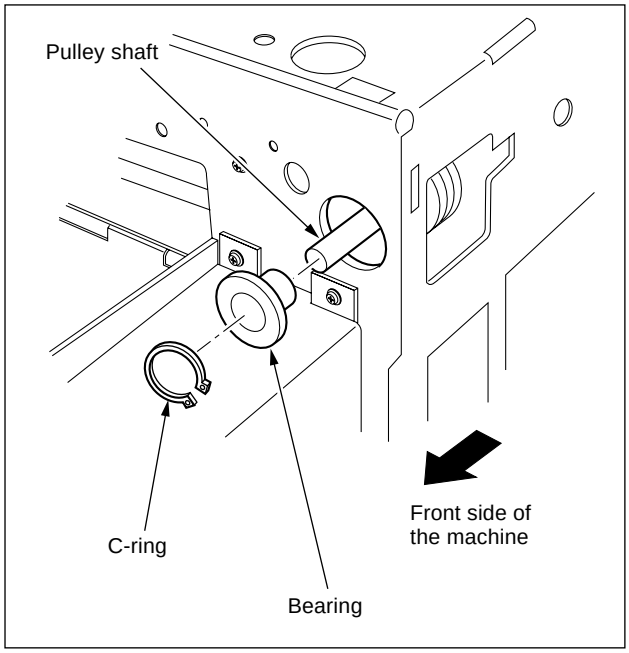
(9) Slide the spring retainer (front) to the paper exit side to fix it in the same way.



(10) Remove the two set screws, then remove the read driven pulley.
(11) Remove the C-ring and bearing on the rear side of the machine. Be careful not to scratch the pulley shaft.



(12) Remove the one C-ring and bearing on the front side of the machine from the pulley shaft in the same way.



(13) Remove the two optics wires (front and rear).
(14) Remove the pulley shaft from the main body. At this time, if the leading edge of the set screw holding the optics rail contacts with the shaft, loosen the set screw.

[6] Installing the Optics Wire

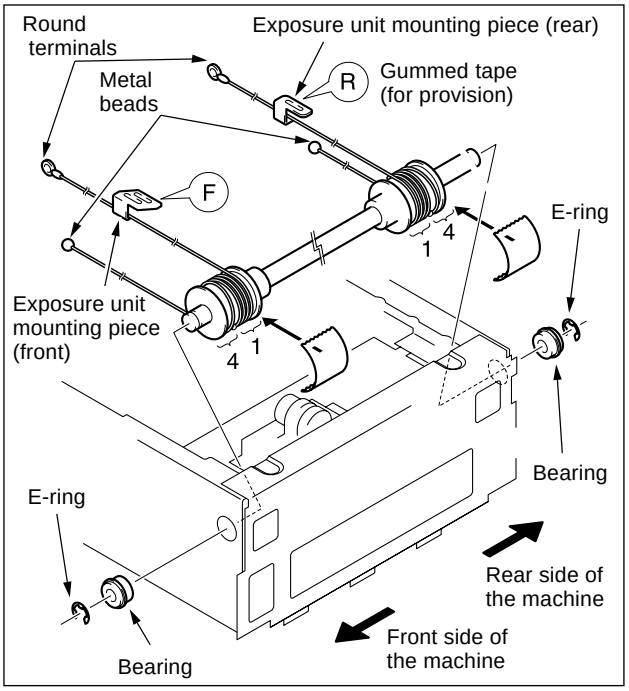
Caution 1: When winding the wire around the pulley, be sure to run the wire tightly to ensure that it does not ride up the side of the pulley.

Caution 2: When reinstalling or replacing the optics wire, be sure to use the optics position adjusting jig.

Caution 3: Be sure to perform image quality adjustment after replacing or reinstalling the wire. (For details, refer to "Adjustment section" on Field Service.)

(1) Insert the metal bead at the mid-point of the optics wire (front) into the mounting hole of the drive pulley, then wind four turns around the pulley to the outside, and one turn to the inside, starting this position.
   (a) Use the optics wire marked "F" on the exposure unit mounting piece to the front side and "R" to the rear side.
   (b) Wind the optics wire so that the side with the metal bead at the leading edge is outside (front/rear) of the pulley shaft.
   (c) Wind the optics wire so that the side with the metal bead at the leading edge passes under the drive pulley.

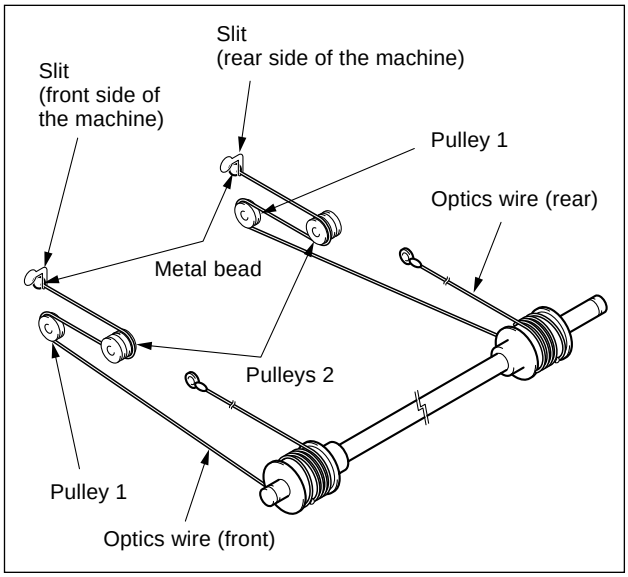
(2) Provisionary fasten the wire to the drive pulley with a gummed tape so that the wire winding is not lost, after that, fix the pulley shaft to the frame with the bearings and E-rings.



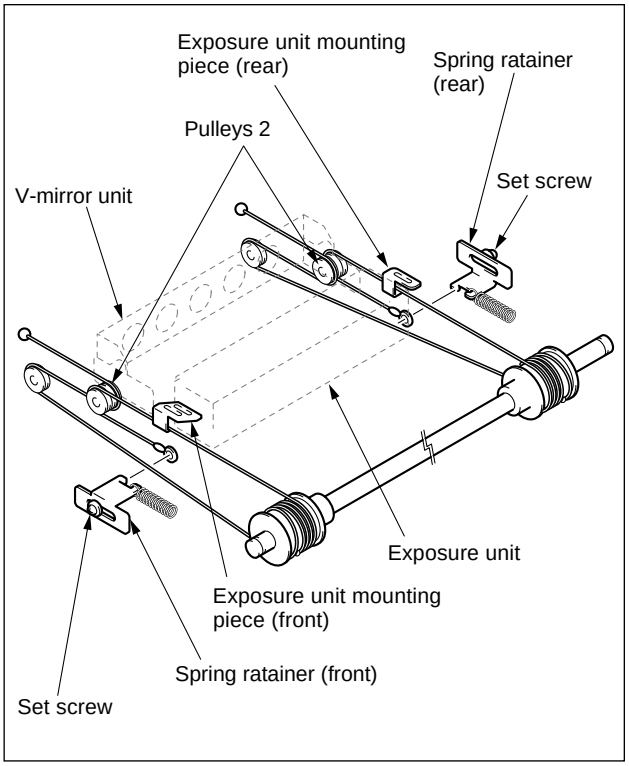
(3) Pass the optics wire (front) of the metal bead side around the pulley 1 (V-mirror unit) then pass it around the inside slit of the pulley 2 (exposure unit). Pass around the optics wire (rear) at the same procedure.

(4) Remove the optics position adjusting jig.

(5) Fasten each metal bead at the leading edge of the optics wire (front and rear) to the slits of the main body frame on the paper exit side.



(6) Pass the side with the round terminal of the optics wire (front) to the outside of the pulley 2 and hook the round terminal on the spring retainer. Hook the optics wire (rear) in the same way.
(7) Install the exposure unit to the main body.
(8) Loosen each set screw fasting the spring retainers.
(9) Fasten each set screw of the spring retainers after moving the exposure unit two or three times.



(10) The reminder of the installation procedureis in the opposite sequence to removal.

WRITE UNIT

[1] Removing and Reinstalling the Write Unit

⚠ **Warning1: Do not energize the write unit when it is not installed in the machine.**

⚠ **Warning2: Never remove the cover from the write unit with the circuit being energized. (If the laser beam gets into your eyes, you may lose your sight.)**

⚠ **Warning3: Never remove the write unit for at least two minutes after turning OFF the main switch.**

⚠ **Caution: Be sure that the power cord has been unplugged from the power outlet.**

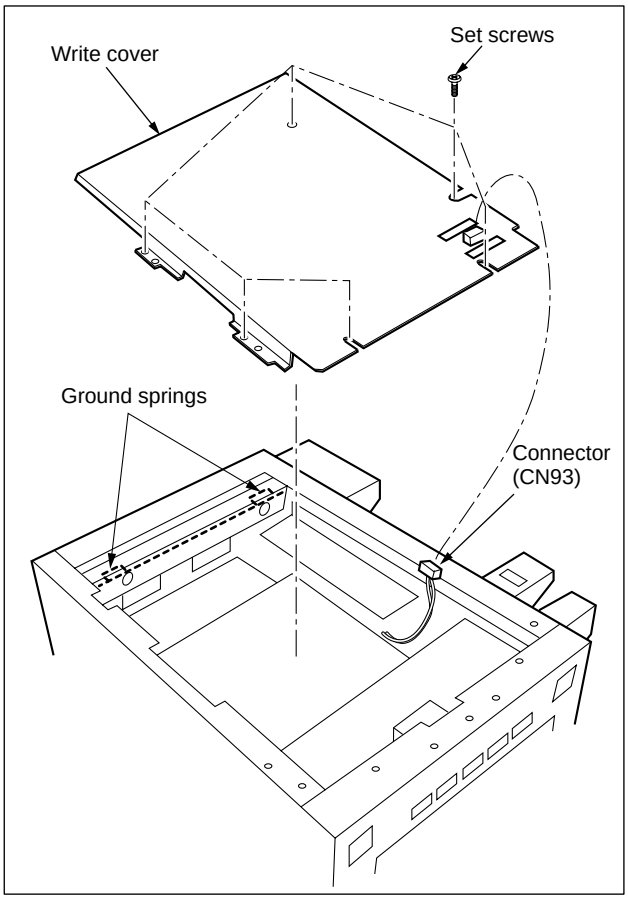
Caution 1: When removing the write unit, do not make contact with the write mirror and dust-proof glass. (prevention of the scratch and stain for the mirror.)

Caution 2: When installing the write cover, check that the write cover is got caught in the ground spring.

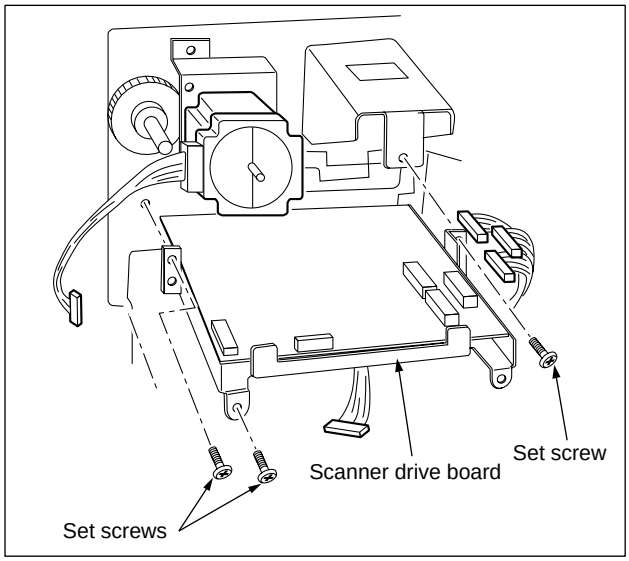
a. Procedure

(1) Remove the original glass.
(Refer to “Read section”)

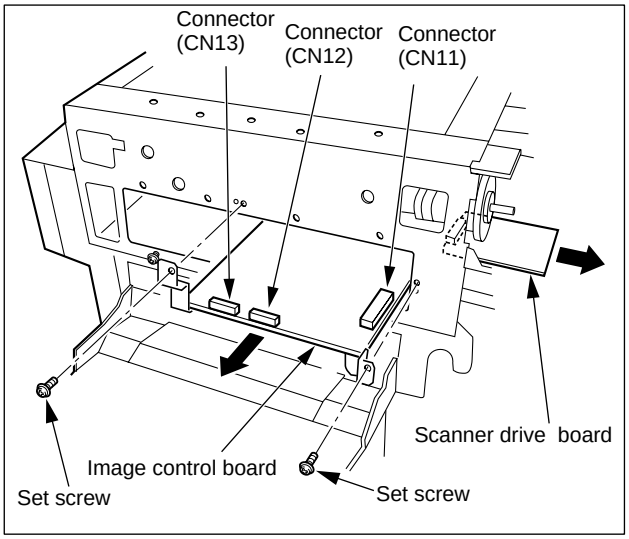
(2) Remove the six set screws and disconnect the connector (CN93), then remove the write cover.



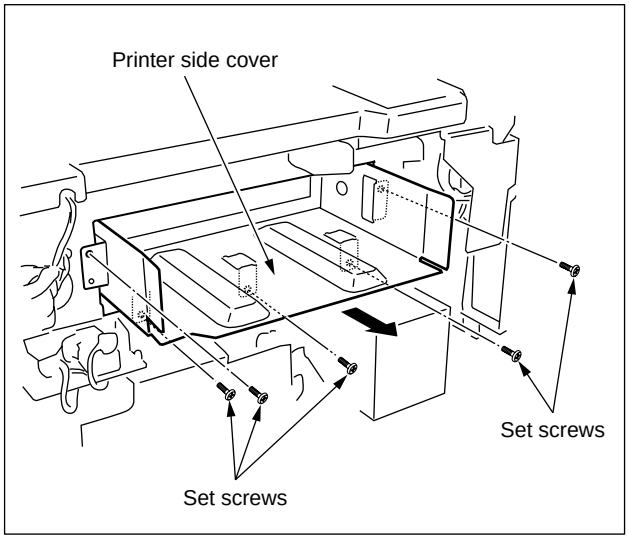
(3) Remove the rear cover.
(Refer to “External section”)
(4) Remove the three set screws holding the scanner drive board (SCDB).
Caution: Be careful not to drop screws etc. between the boards at the rear of the main body.



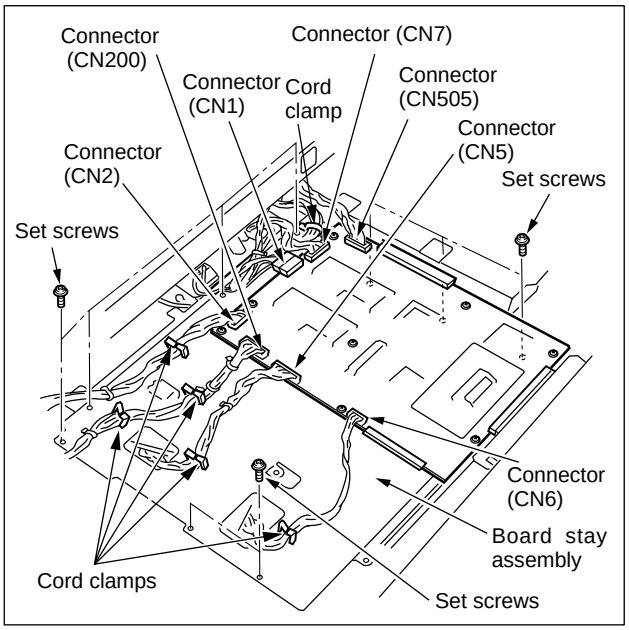
(5) Remove the side cover (right).
(Refer to “External section”)
(6) Remove the cover plate.
(Refer to “Read section”)
(7) Disconnect two connectors (CN12,13) from the image control board (ICB).
(Refer to “Read section”)
(8) Pull out the scanner drive board into the rear side of the machine and disconnect the connector (CN11) on the image control board from the scanner drive board.
(9) Remove the two set screws and pull out the image control board.



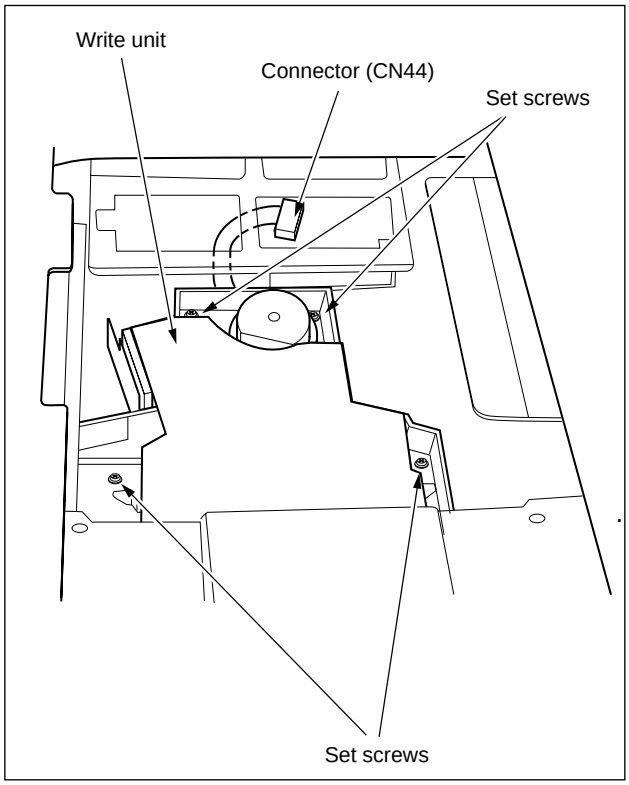
(10) Remove the five set screws, then remove the printer side cover.



(11) Disconnect the seven connectors (CN1, CN2, CN5, CN6, CN7, CN200, CN505) and free the wiring from the six cord clamps.
(12) Remove the nine set screws, then remove the board stay assembly .



(13) Disconnect the connector (CN44).
(14) Remove the four set screws, then remove the write unit

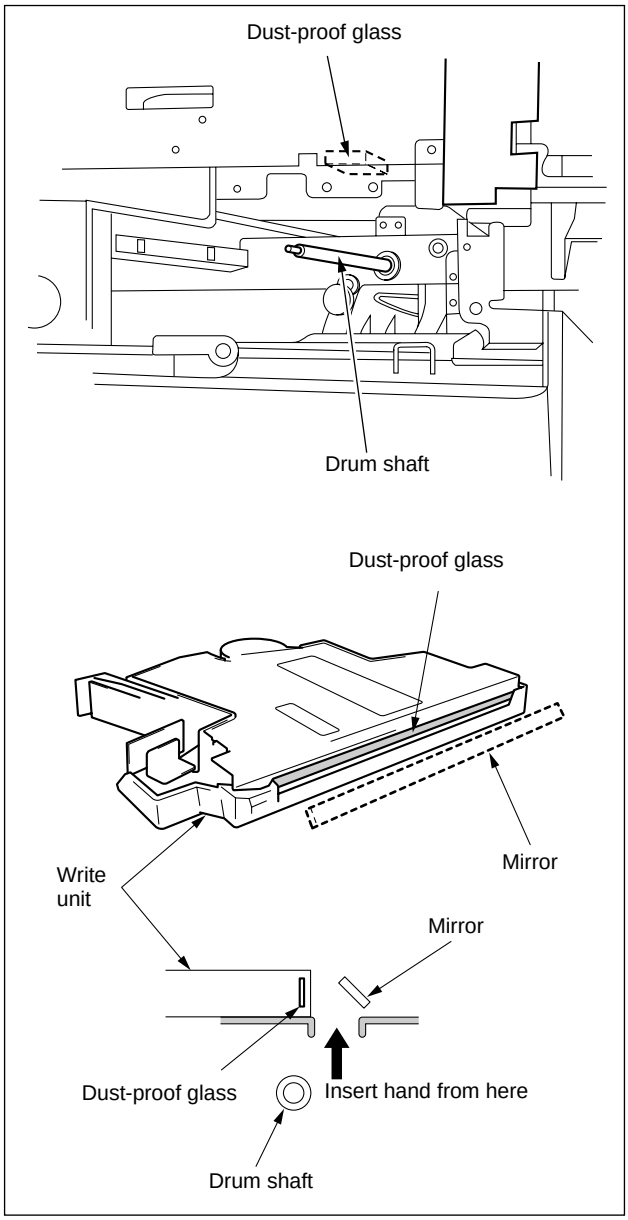


(15) Reinstall the write unit in the opposite sequence to removal.

[2] Cleaning the Dust-proof Glass

a. Procedure

(1) Remove the drum unit.
(Refer to “Drum unit”)
(2) Reach inside the main body and using a soft cloth wipe the dirt from the dust-proof glass.



DRUM UNIT

[1] Removing and Reinstalling the Drum Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution 1: Do not shake the drum unit up and down, side to side, or repeatedly move back and forth when removing or installing and handle it slowly keeping it horizontal to its axis.

Caution 2: When removing or installing the drum unit, pull out the drum coupling shaft that is on your side and work with the lock mechanism fixed in place.

Caution 3: When installing the drum unit, clean the drawer connector on the back side of the drum unit with the blower brush.

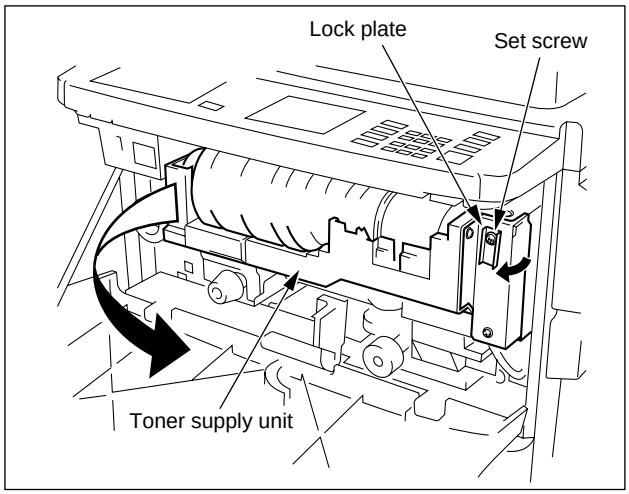
Caution 4: After installing the drum unit back into the main unit, rotate the charge cleaning knob back and forth about 2 times.

Caution 5: When removing the drum unit, be sure to place the drum cover over it and store the drum carriage in a dark place.

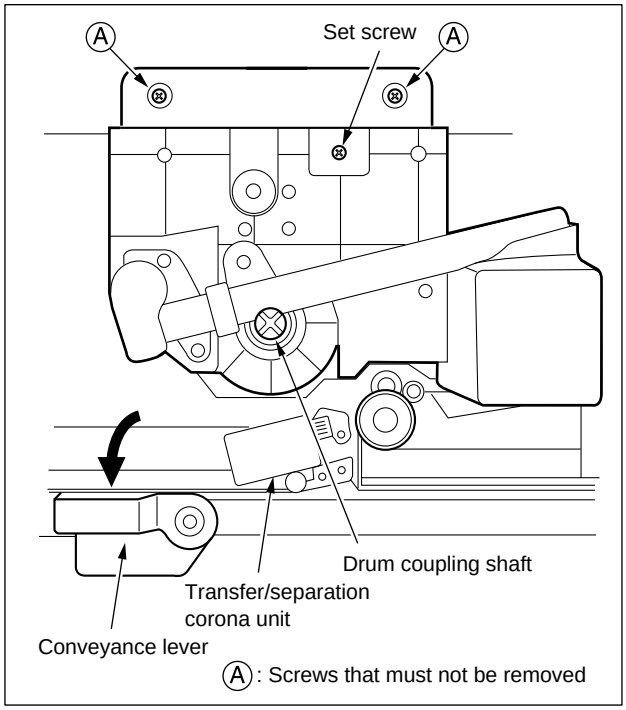
Caution 6: Be careful not to rotate the drum when installing or removing the drum unit. If you rotate the drum in the direction opposite to the direction in which it rotates during a copy operation, you risk damaging the cleaning blade.

a. Removal procedure

(1) Open the front door, loosen the one set screw, release the lock plate of the toner supply unit, then open the toner supply unit to the paper feed side.



(2) Release the conveyance lever.
(3) Remove the Transfer/separation corona unit from the main body.
(Refer to “Corona unit”)
(4) Remove the one set screw holding the drum unit.



(5) Slowly pull the drum unit out careflly to the front.

b. Reinstallation procedure

(1) Make sure that the drum coupling shaft and the drum flange are correctly meshed.
(2) Slowly insert the drum unit into the main body until the drum coupling shaft hit the drum shaft and it is pushed out slightly toward you. (When the drum coupling shaft and the drum flange are not correctly meshed, the drum coupling shaft hit the drum shaft and it is pushed out toward you.)

Caution: At this time, do not squeeze the drum unit into the main body by force. Also, do not rotate the drum coupling shaft with the drum unit is squeezed into the main body.

(3) With the drum coupling shaft is pushed out slightly toward you, rotate the drum coupling shaft in the forwarding direction, and mesh the drum coupling shaft and the drum shaft correctly.
(4) Securely reinstall the drum unit to the main body and fix it with the set screw.
(5) Reinstall the drum unit in the opposite sequence to removal.

[2] Removing and Reinstalling the Drum

Caution 1: Be careful not to touch the drum or the cleaning blade with bare hands, or damage these parts.

Caution 2: When removing and re-installing the drum, be careful not to hit the drum on the metal plate section of the cleaning blade.

Caution 3: When leaving the drum to stand, be sure to place the drum cover over it and store it in a dark place.

Caution 4: When installing the drum and cleaning blade, regardless of the new or old parts, apply setting powder to all of the drum surface and the both ends of the cleaning blade.

Caution 5: After applying setting powder to the drum, carry out the following work before installing the drum unit into the main body.

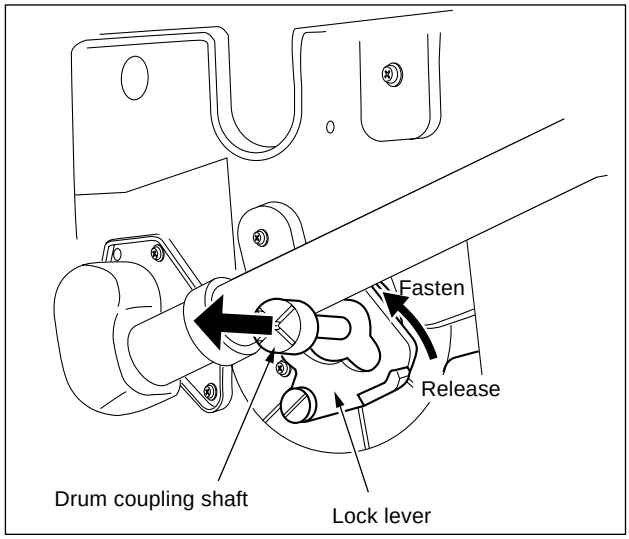
- To obtain the correct toner density, clean setting powder leakage on the surface of the sensor on the toner control sensor board with an alcohol damped cloth.

Caution 6: When installing the drum, be careful of the orientation of the drum. The gear side of the drum is rear the side.

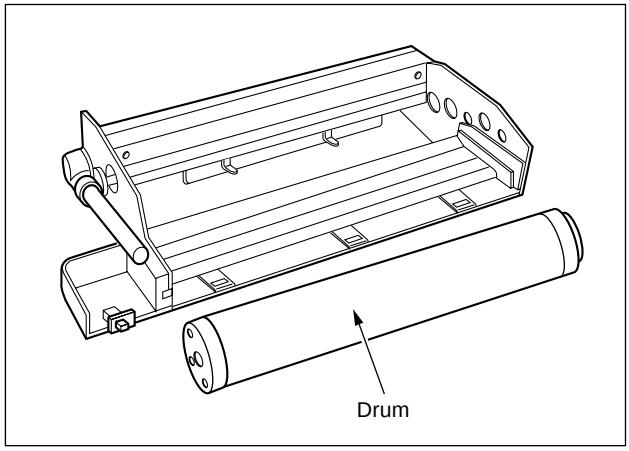
Caution 7: When installing a new drum, be sure to enter code 91-1 of the 47 mode and reset the drum counter. Then, be sure to preform the charging grid voltage adjustment and PWM gamma (patch) adjustment. (For details, refer to "Adjustment section" in Field Service.)

a. Removal procedure

(1) Pull out the drum coupling shaft, then fasten it with the lock lever.
(2) Remove the drum unit from the main body.
(3) Remove the charging corona unit and developing unit from the drum unit. (For the sequence of removing these parts, refer to "Corona unit" and "Developing unit".)
(4) Holding the both ends of the drum and lower the cleaning unit, then shake the drum unit few times.
(5) Check that the toner is not left between cleaning blade and toner collection sheet.



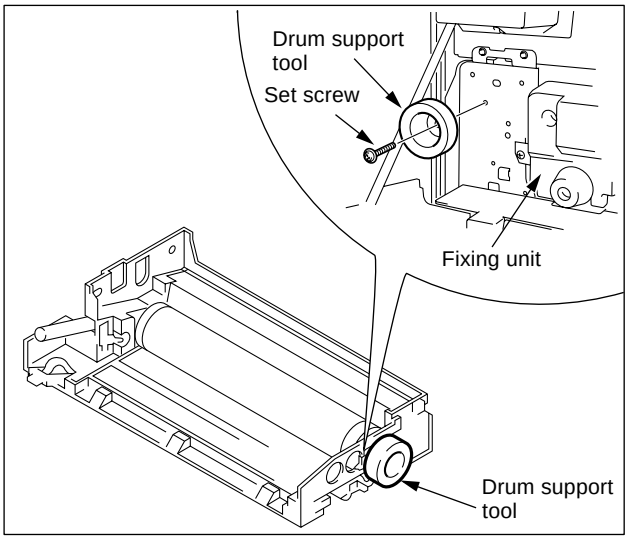
(6) Gently lift out the drum while holding it at both ends to ensure that you do not damage the photosensitive surface.



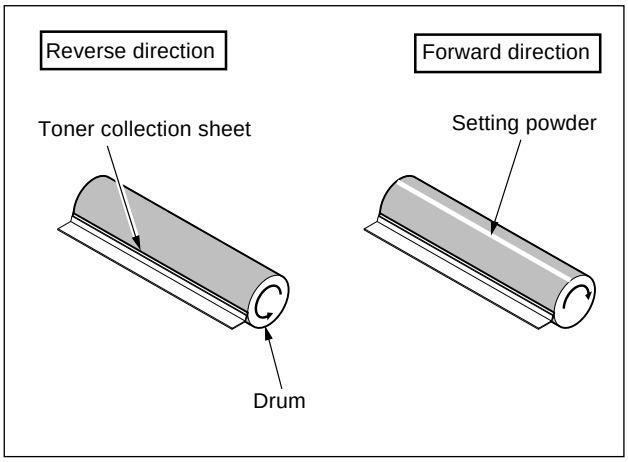
b. Reinstallation procedure

Caution: Push down both ends of the toner collection sheet towards you and confirm that the entire drum is in contact without any space.

(1) Remove the cleaning blade.
(Refer to “Cleaning / toner recycle section”.)
(2) Apply setting powder into the entire surface of the drum.
(3) Install the drum to the drum casing and release the lock lever, then lock the drum coupling to the drum flange.
(4) Remove the drum support tool from the main body and insert it into the drum (gear side).



(5) Rotate the drum counterclockwise once.
(6) Rotate the drum clockwise a bit.
(7) Check that setting powder collected by the toner collection sheet remains on the surface of the drum to the both ends of the drum without a clearance.



(8) Remove the drum support tool from the drum.
(9) Pull out the drum coupling shaft, then fasten it with the lock lever.
(10) Remove the drum from the drum casing.
(11) Gently wipe setting powder on the surface of the drum with a cleaning pad.
(12) Apply setting powder to the entire surface of the drum.
(13) Apply toner to both ends of the cleaning blade edge and setting powder to the middle of the drum.
(14) Install the drum to the drum casing, release the lock lever, lock the drum coupling to the drum flange and install the drum support tool to the drum.
(15) Rotate the drum in the forward direction and check that there is no setting powder falling and curling of the cleaning blade.
(16) The reminder of the installation procedure is in the opposite sequence to removal.

[3] Removing and Reinstalling the Separation Claws

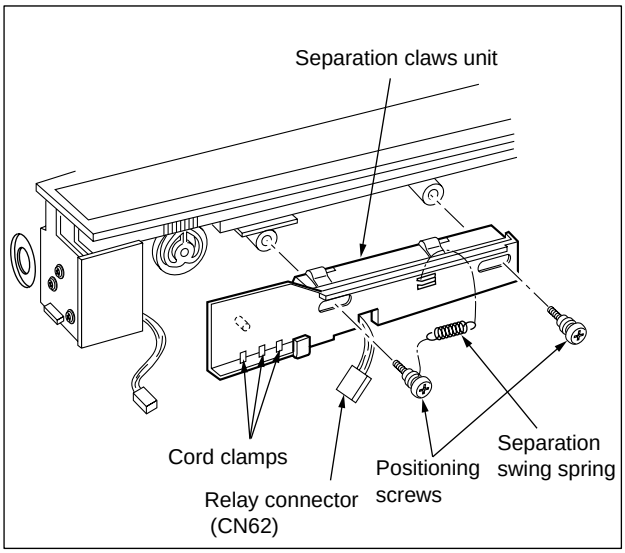
Caution 1: Take care not to damage the drum when removing the separation claws.

Caution 2: Be careful of the orientation and position of the separation claws when re-installing the claws.

Caution 3: Do not touch the cleaning blade or the drum with the bare hands.

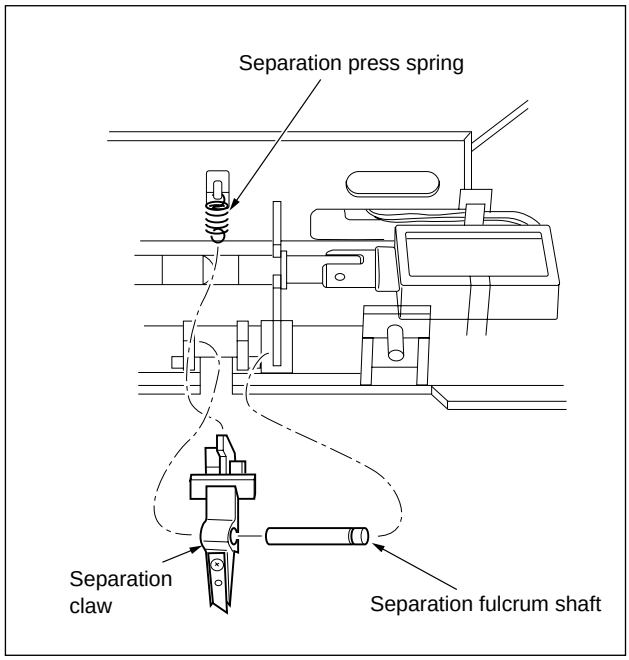
a. Procedure

(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Remove the drum from the drum unit.
(3) Disconnect the relay connector (CN62) and free the wiring from the cord clamps.
(4) Remove the Separation swing spring and the two positioning screws, then remove the separation claws unit.



Caution: Take care not to lose the collar of the positioning screw.

(5) Remove the separation press spring from each of the separation claws.
(6) While pressing down the separation fulcrum shaft, remove the separation claw (two).



(7) Reinstall the separation claws in the opposite sequence to removal.

CORONA UNIT SECTION

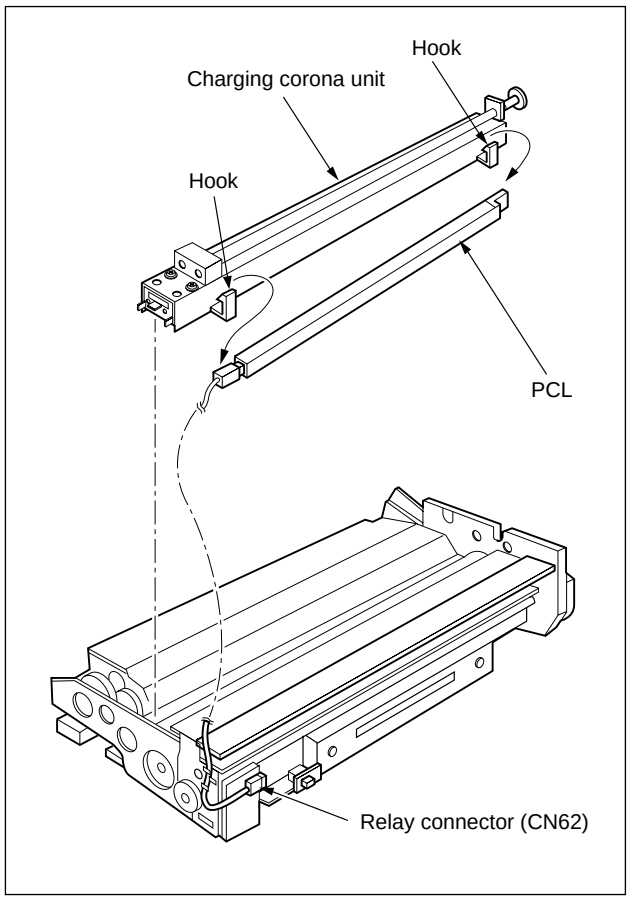
[1] Removing and Reinstalling the Charging Corona Unit and PCL

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution: If you installed the PCL, ensure that it is securely tightened.

a. Procedure

(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Disconnect the relay connector (CN62) from the drum unit.
(3) Lift up the charging corona unit at the rear side first then while moving it to the rear raise the front side.
(4) Remove the PCL from the hooks of the charging corona unit.



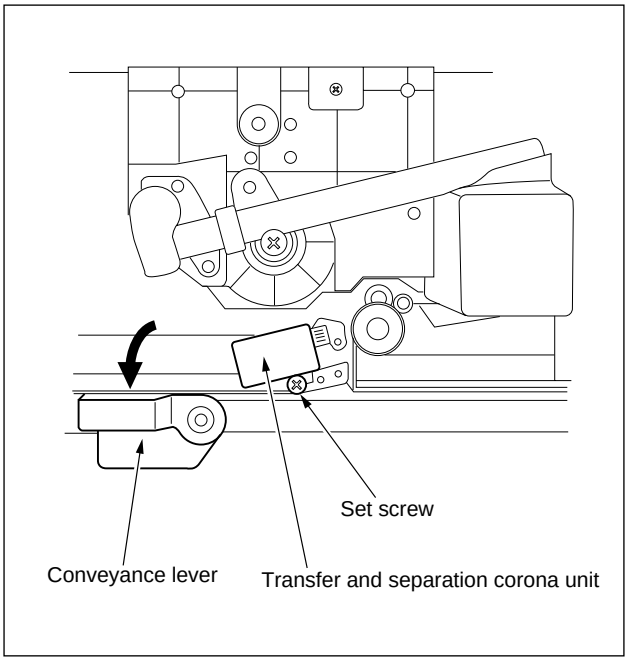
(5) Reinstall the charging corona unit and PCL in the opposite sequence to removal.

[2] Removing and Reinstalling the Transfer and Separation Corona Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Open the front door, and release the conveyance lever.
(2) Remove the one set screw, then pull the transfer and separation corona unit forward to remove it.
Caution: Take care not to drop the set screws into the main body.



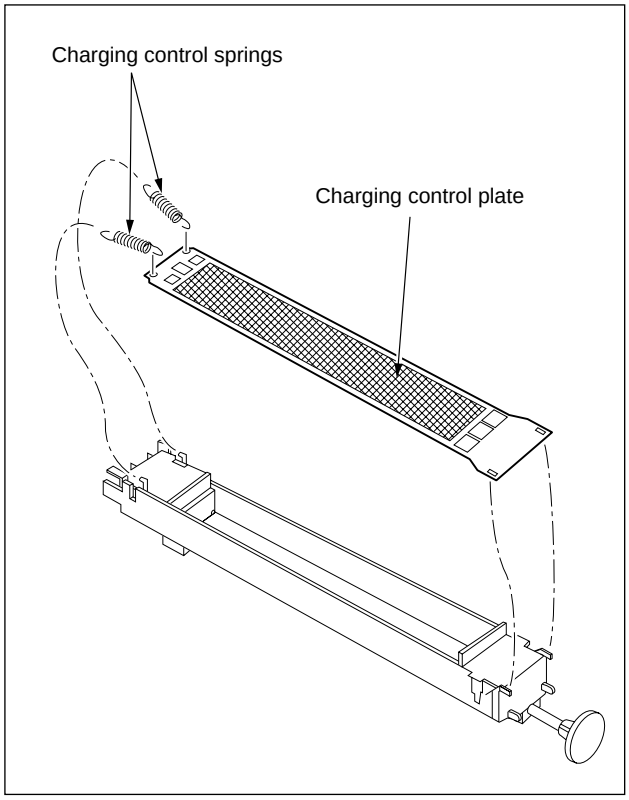
(3) Reinstall the transfer and separation corona unit in the opposite sequence to removal.

[3] Removing and Reinstalling the Charging Control Plate

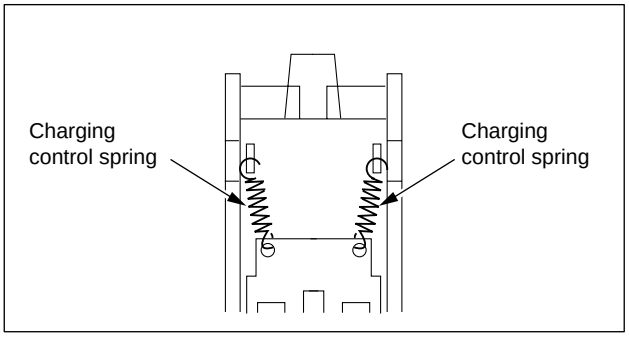
Caution: Install the charging control plate so that the end with the round holes has the springs hooking it to the rear of the charging corona unit.

a. Procedure

(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Remove the charging corona unit.
(3) Remove the two charging control springs, then remove the charging control plate.
(4) Remove dirt from the charging control plate by gently dabbing it with a cloth moistened with drum cleaner, then remove any remaining dirt with a blower brush.



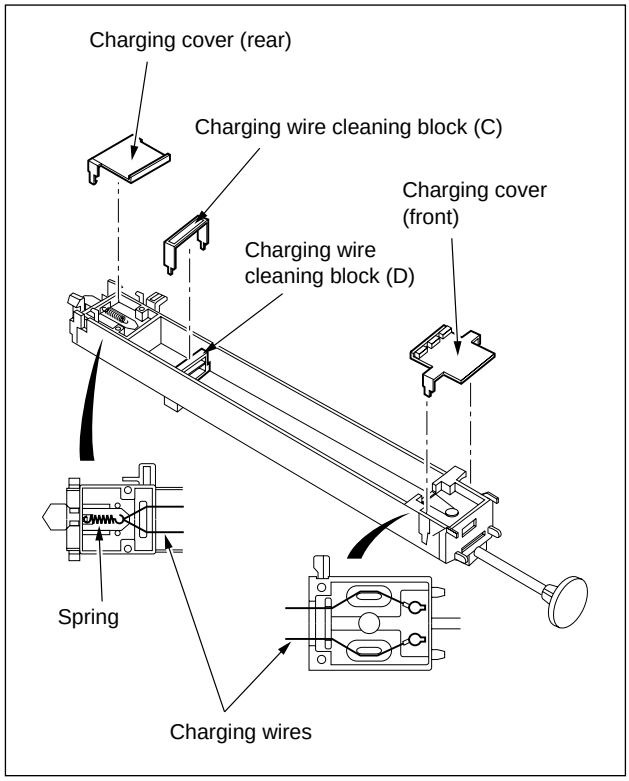
(5) Reinstall the charging control plate in the opposite sequence to removal.
Caution: When installing the charging control springs, be careful of the attachment direction.



[4] Replacing the Charging Wire

a. Procedure

(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Remove the charging corona unit.
(3) Remove the charging control plate.
(4) Remove the charging cover (front and rear) each.
(5) Remove the charging wire cleaning block (C).
(6) Remove the charging wire cleaning block (D).
(7) Remove the one spring, then remove the charging wire.

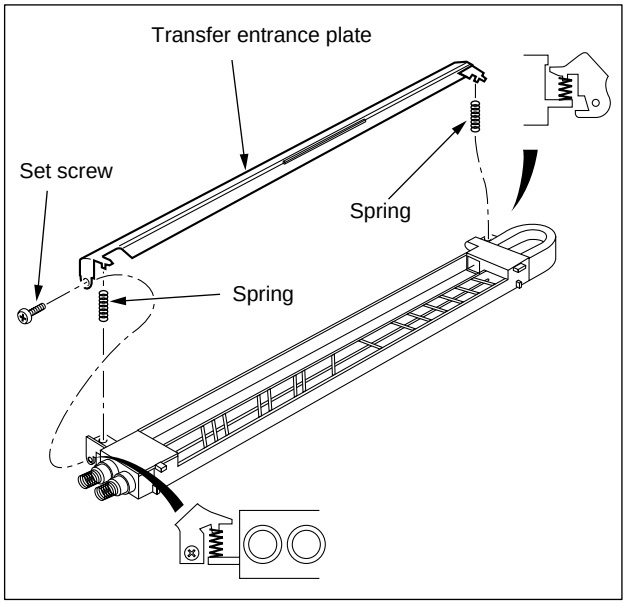


(8) Reinstall the charging wire in the opposite sequence to removal.

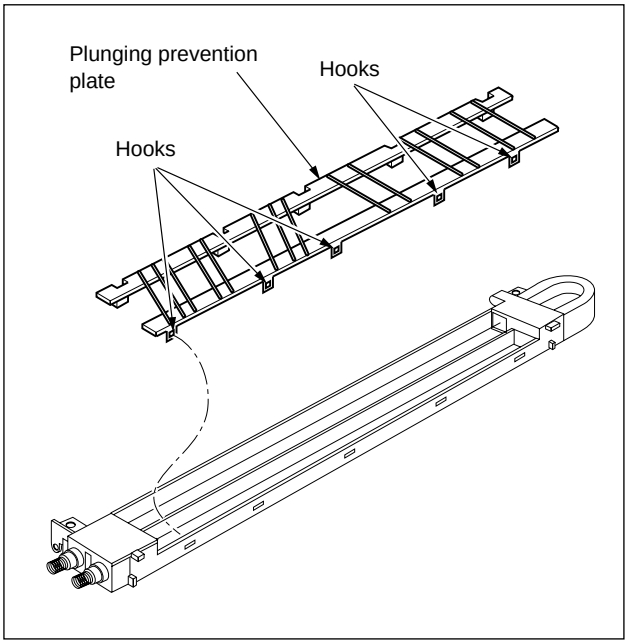
[5] Replacing the Transfer and Separation Wires

a. Procedure

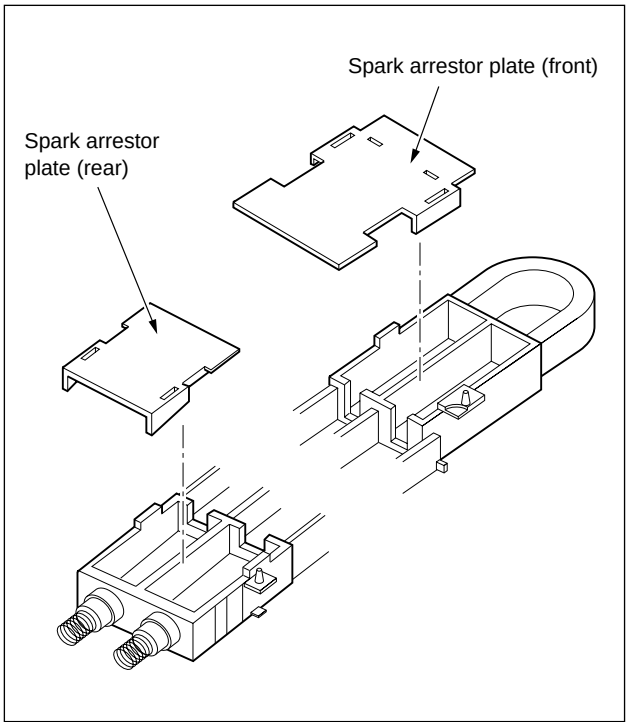
(1) Remove the transfer and separation corona unit from the main body.
(2) While lifting the transfer entrance plate, remove the two springs.
(3) Remove the one set screw, then remove the transfer entrance plate.



(4) Remove the five hooks from the transfer and separation corona unit with tweezers, then remove the plunging prevention plate.

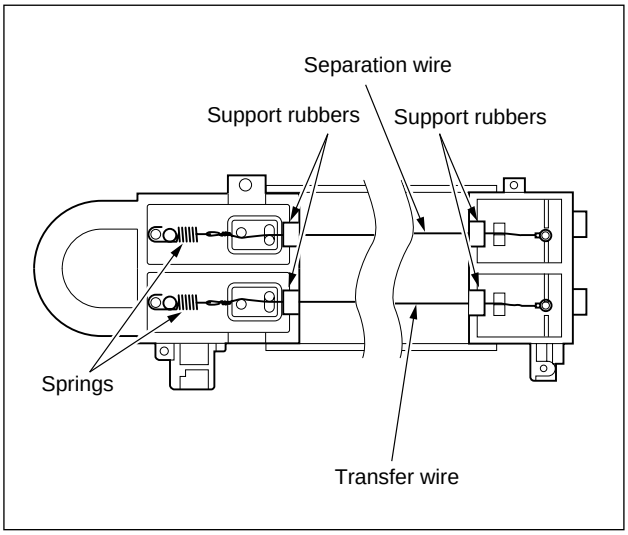


(5) Remove the spark arrestor plates (front and rear).



(6) Remove the springs (one spring) for each wire, then remove the transfer wire and separation wire.

(7) Remove the support rubber from each wire.

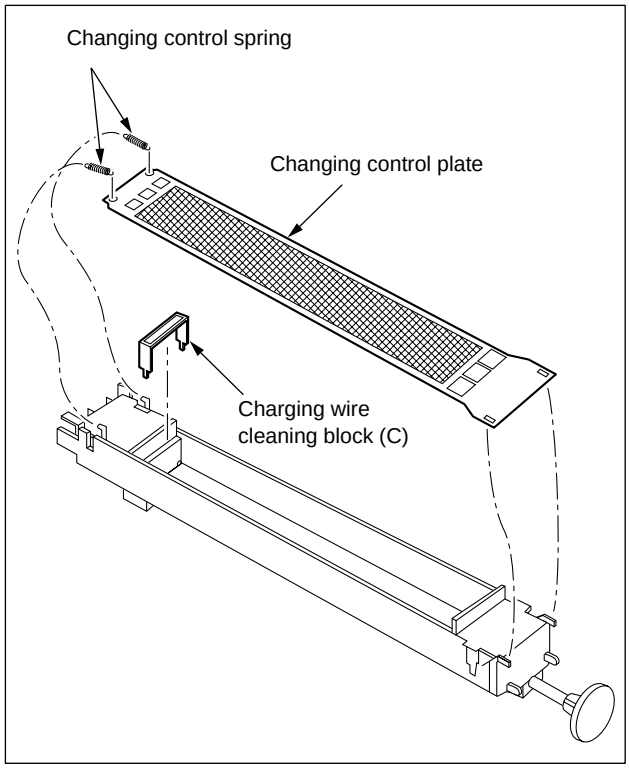


(8) Reinstall the transfer and separation wires in the opposite sequence to removal.

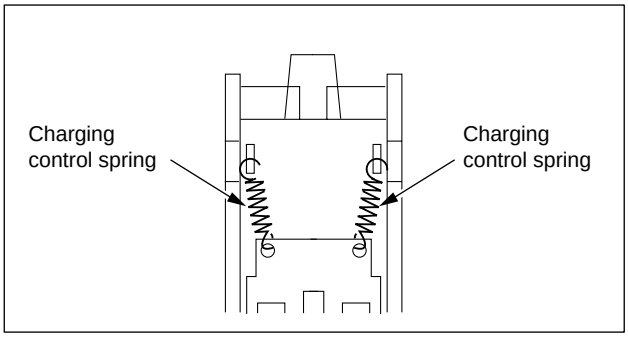
[6] Replacing the Charging Wire Cleaning Blocks (C) and (D)

a. Procedure

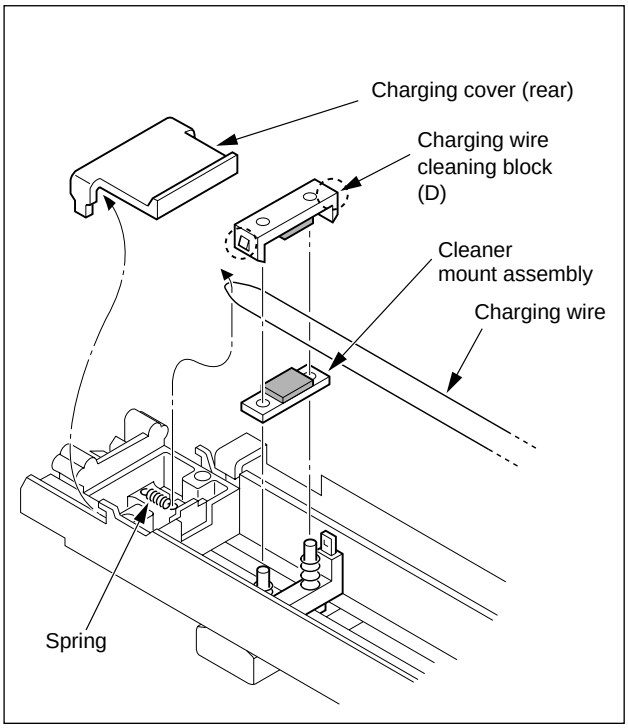
(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Remove the charging corona unit.
(3) Remove the charging control plate.
(4) Remove the charging wire cleaning block (C).



Caution: When installing the charging control spring, be careful of the attachment direction of the spring.



(5) Remove the charging cover (rear).
(6) Remove the charging wire from the spring.
(7) Remove the charging wire cleaning block (D) and cleaner mount assembly.



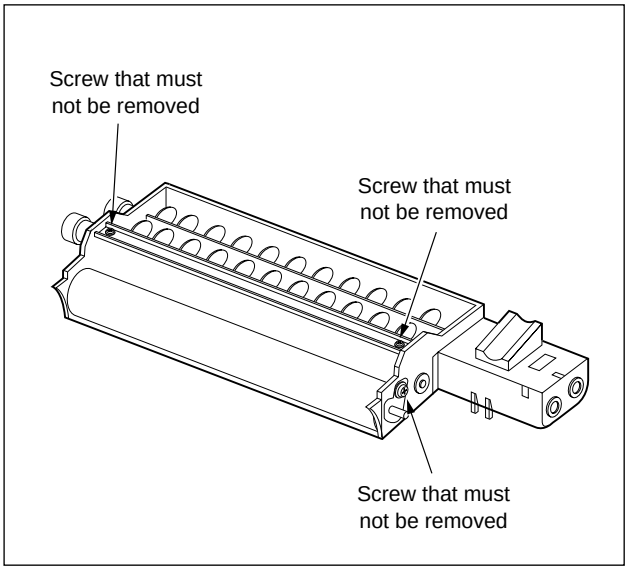
(8) Reinstall the charging wire cleaning block (C) and (D) in the opposite sequence to removal.

DEVELOPING UNIT

[1] Screws That Must Not Be Removed

Caution: Never do any adjustments, remove set screws, or any similar task at the market in regards to the items below.

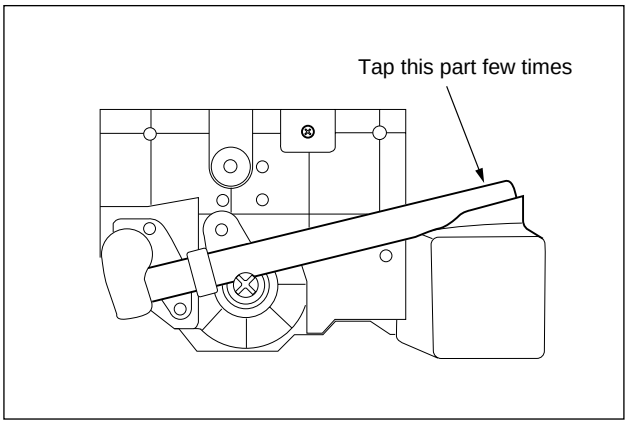
(1) The two set screws of the developing regulating plate.
(2) The one set screw of the magnet angle adjustment plate.



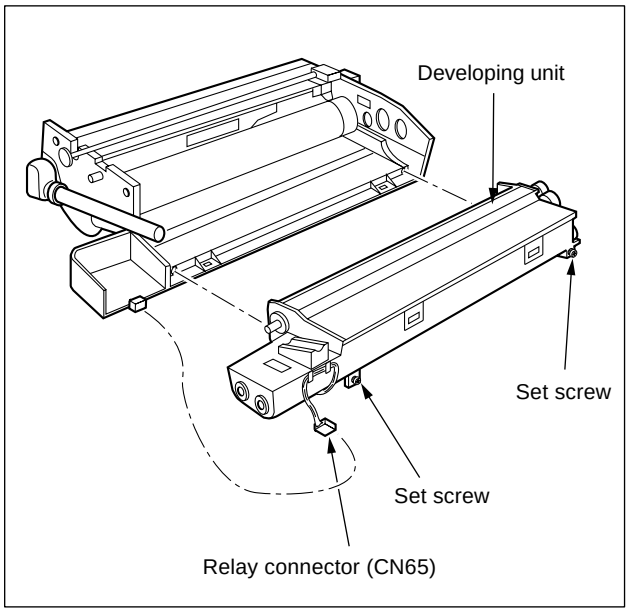
[2] Removing and Reinstalling the Developing Unit

a. Procedure

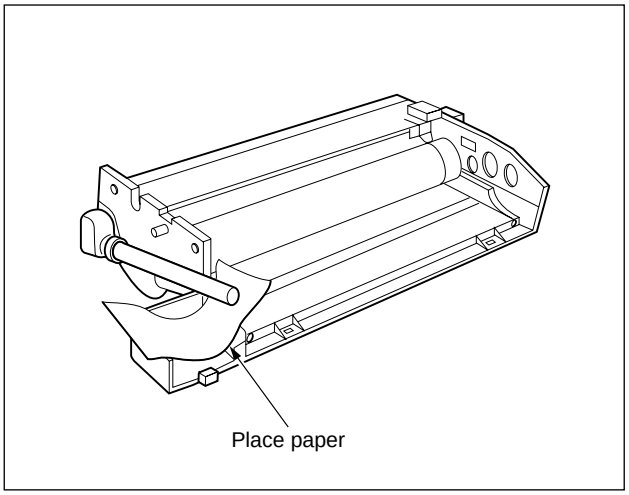
(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Tap the recycle pipe a few times around the discharge opening to drop recycled toner into the developing unit.



(3) Disconnect the relay connector (CN65).
(4) Loosen the two set screws, then remove the developing unit from the drum unit.



(5) Place paper under the toner exit of the toner recycle pipe (for catching remaining toner).



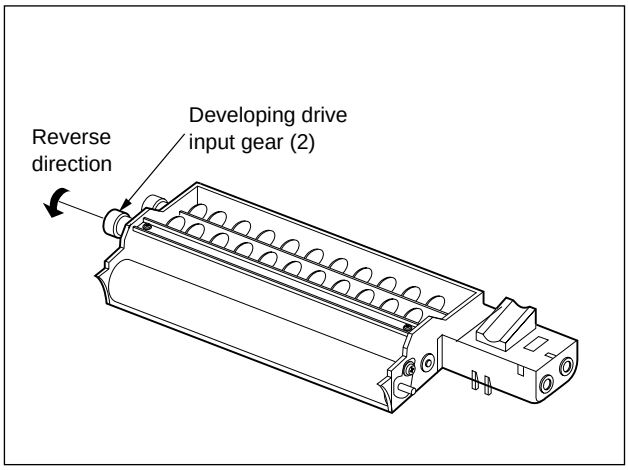
(6) Reinstall the developing unit in the opposite sequence to removal.

[3] Replacing the Developer

Caution 1: When replacing the developer, take care that dirt does not become mixed with it.

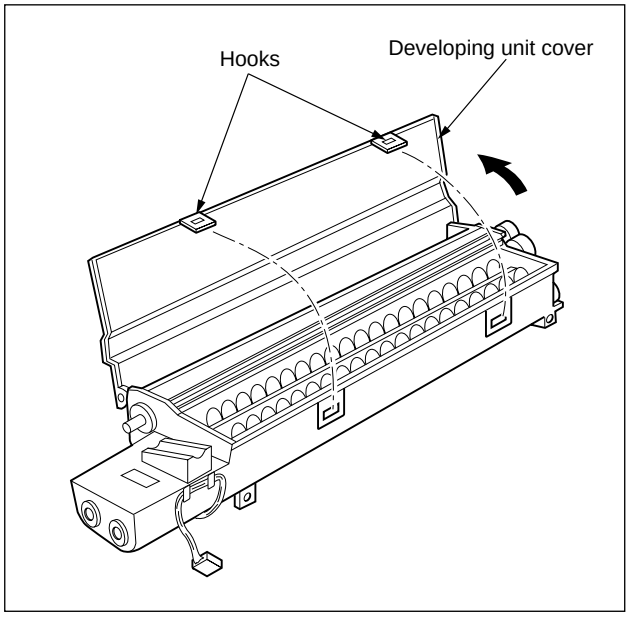
Caution 2: After supplying new developer, never rotate the developing drive input gear (2) in the clockwise (reverse direction) direction.

Caution 3: After supplying new developer, make sure to perform 36 mode L detection adjustment (For details, refer to "Adjustment section" in Field Service).

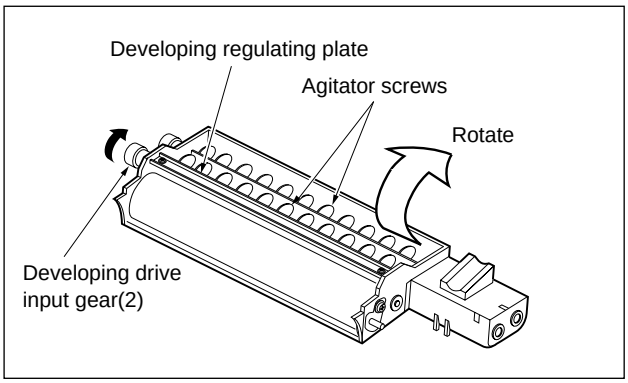


a. Procedure

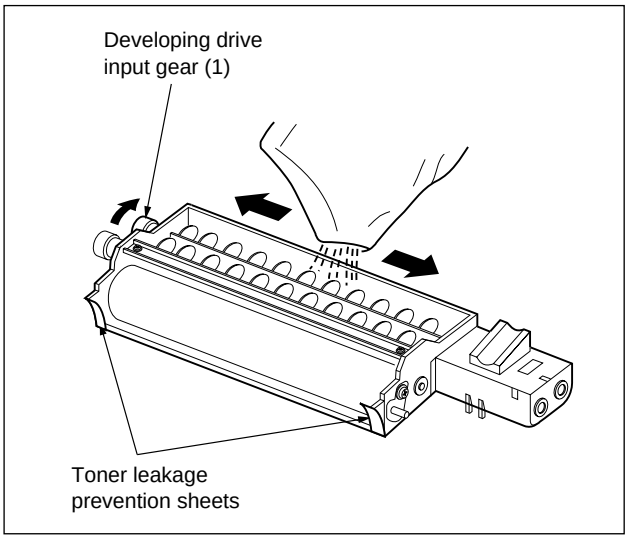
(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Remove the developing unit from the drum unit.
(3) Release the hooks on the developing unit cover, then lift up and remove the cover.



(4) Tilt the developing unit so that the agitator screw side is downward, then rotate the developing drive input gear (2) in the counterclockwise direction until all of the developer adhering to the inside of the developing unit and the developing sleeve is discharged.
(5) Wipe the developer remaining on the developing regulation plate.



(6) Supply fresh developer evenly from the top of the agitator screw.
(7) Rotate the developing drive input gear (1) in the counterclockwise direction until all of the developer enters the inside of the developing unit.



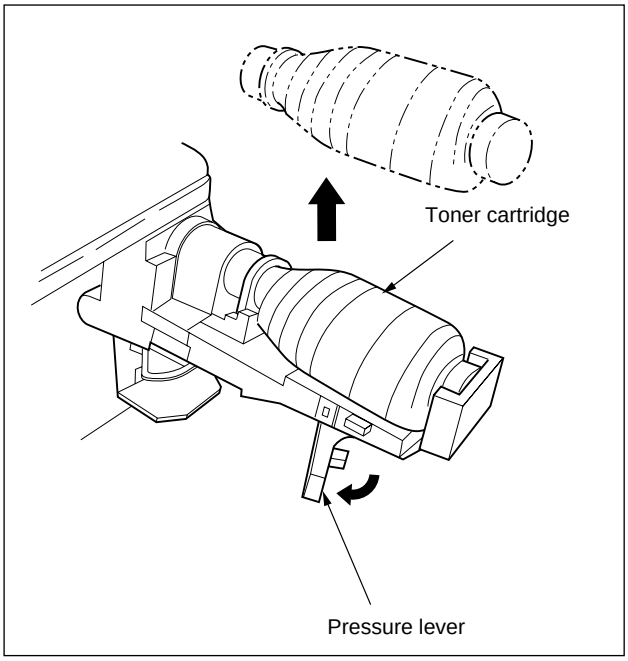
(8) Repeat steps (6) and (7) until all of the developer has been supplied to the developing unit.
(9) Rotate the developing drive input gear (2) in the counterclockwise direction, and check that the developer bristles along the entire length of the developing sleeve.
(10) Install the developing cover
(11) Check that the toner leakage prevention sheet is not caught by the developing unit cover.
(12) Install the developing unit on the drum unit.

TONER SUPPLY UNIT

[1] Removing and Reinstalling the Toner Cartridge

a. Procedure

(1) Open the front door, then swing out the toner supply unit.
(2) Pull the pressure lever, then remove the toner cartridge.



(3) Reinstall the toner cartridge in the opposite sequence to removal.

CLEANING/TONER RECYCLE UNIT

[1] Removing and Reinstalling the Cleaning Blade

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution 1: Do not touch the edge of the cleaning blade with bare hands.

Caution 2: Push down both ends of the toner collection sheet towards you and confirm that the entire drum is in contact without any space.

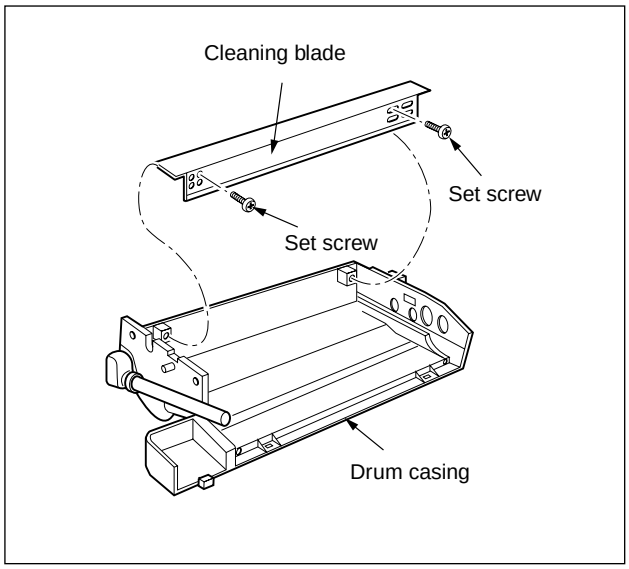
Caution 3: When installing the drum and cleaning blade, apply setting powder to the entire surface of the drum and also the cleaning blade, regardless of whether the drum and cleaning blade are new or old type parts.

Caution 4: Once the drum has been applied with setting powder, carry out the following work before installing the drum unit to the main body.

- To obtain the correct toner density, clean setting powder leakage on the surface of the sensor on the toner control sensor board with an alcohol damped cloth.

a. Procedure

(1) Remove the drum unit from the main body. (Refer to “Drum unit section”)
(2) Remove the charging corona unit. (Refer to “Corona unit section”)
(3) Remove the developing unit and drum from the drum casing.
(4) Remove the two set screws, then remove the cleaning blade.



(5) Reinstall the cleaning blade in the opposite sequence to removal.

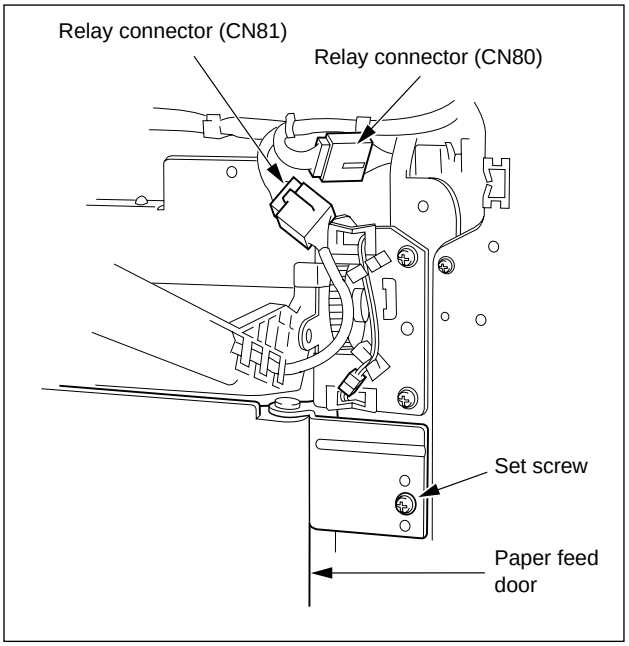
PAPER FEED UNIT

[1] Removing and Reinstalling the By-pass Paper Feed Unit

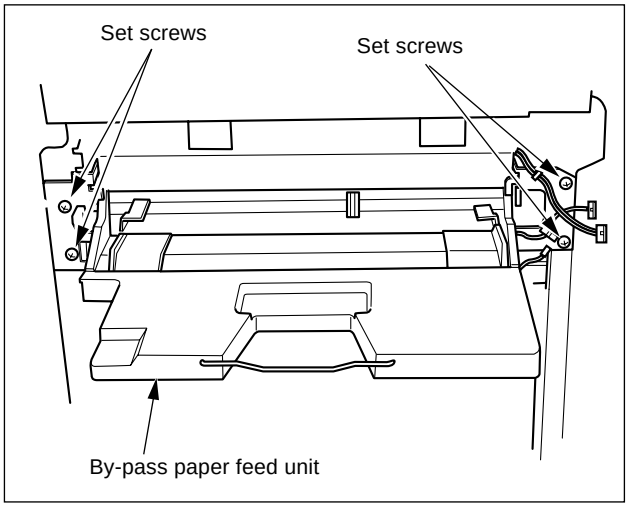
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the side cover (right).
(2) Remove the two relay connectors (CN80, CN81) of the by-pass paper feed unit.
(3) Remove the one set screw, then remove the paper feed door.



(4) Remove the four set screws, then remove the by-pass paper feed unit.



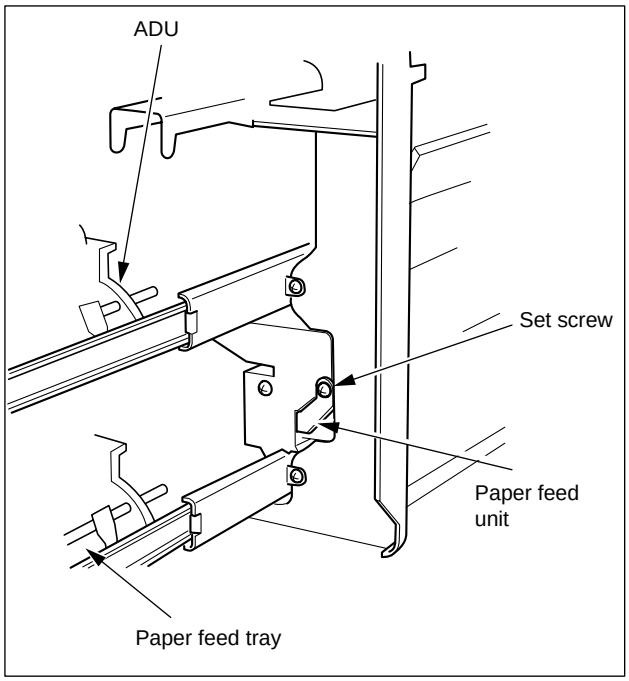
(5) Reinstall the by-pass paper feed unit in the opposite sequence to removal.

[2] Removing and Reinstalling the Paper Feed Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Pull out ADU and the paper feed tray in the forward direction.
(2) Remove the one set screw, then pull out the paper feed unit with the rail as guide of the paper feed tray toward you.



(3) Reinstall the paper feed unit in the opposite sequence to removal.

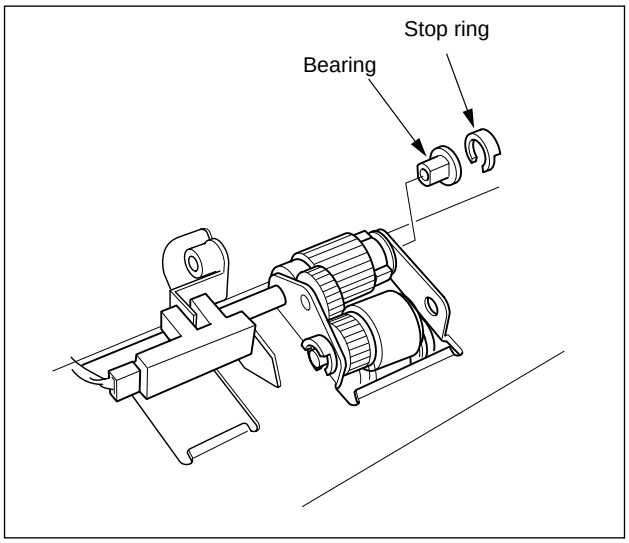
Caution: Be sure to make a copy after installing the paper feed unit and check that paper is fed normally.

If the rocking gear is not held by the 1st paper feed solenoid, the paper feed is not made normally.

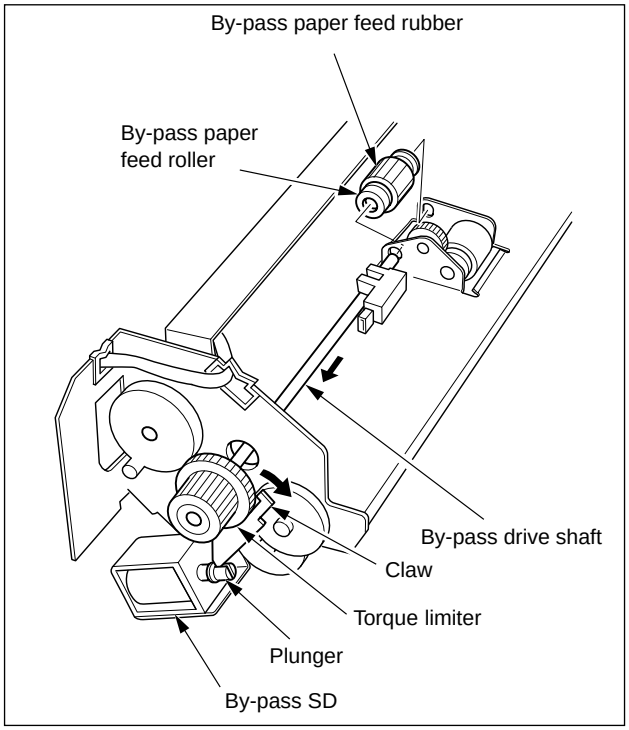
[3] Replacing the By-pass Paper Feed Rubber

a. Procedure

(1) Remove the by-pass paper feed unit.
(2) Remove the one stop ring and bearing.



(3) Press the plunger of the by-pass SD (SD4) until claw of the by-pass solenoid releases from the gear of the torque limiter.
(4) Pull out the by-pass drive shaft while pressing the plunger of the by-pass SD, then remove the by-pass paper feed roller.
(5) Remove the by-pass paper feed rubber from the by-pass paper feed roller.

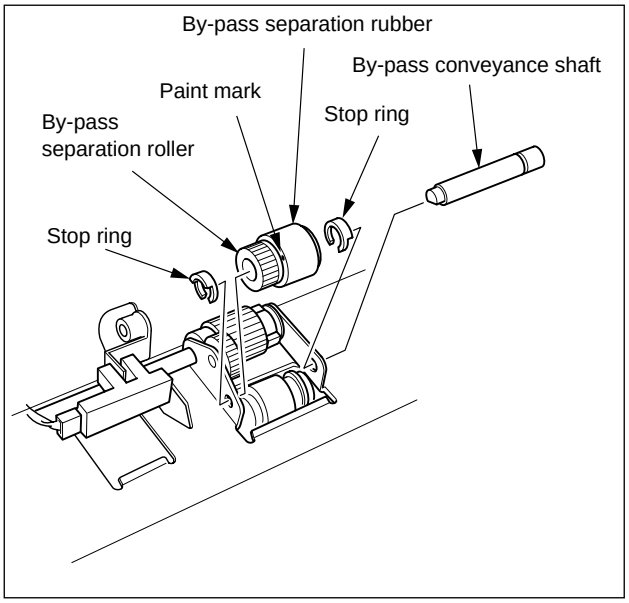


(6) Reinstall the by-pass paper feed rubber in the opposite sequence to removal.

[4] Replacing the By-pass Separation Rubber

a. Procedure

(1) Remove the by-pass paper feed unit.
(2) Remove the two stop rings.
(3) Pull out the by-pass conveyance shaft, then remove the by-pass separation roller.
(4) Remove the by-pass separation rubber from the by-pass separation roller.

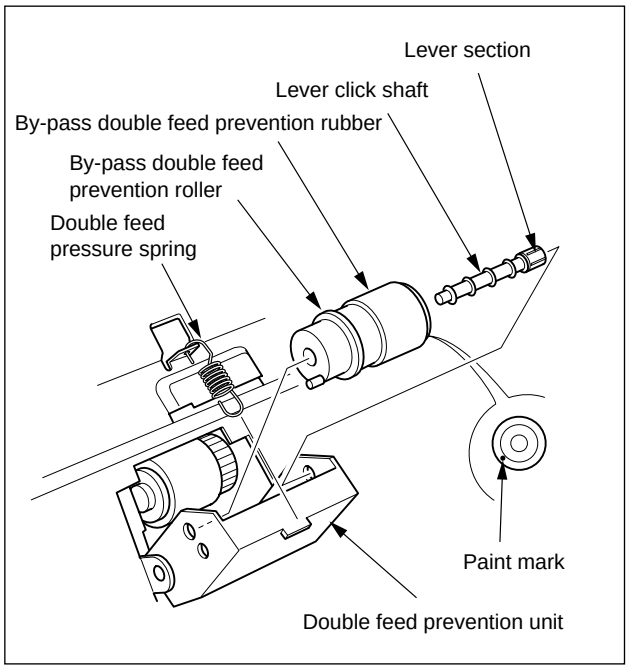


(5) Reinstall the by-pass separation rubber in the opposite sequence to removal.
Caution: Check that the mounting orientation of the by-pass separation rubber is correct.

[5] Replacing the By-pass Double Feed Prevention Rubber

a. Procedure

(1) Remove the by-pass paper feed unit.
(2) Remove the double feed pressure spring from the double feed prevention unit, then open the double feed prevention unit.
(3) While pressing the lever section of the lever click shaft, then pull out the lever click shaft.
(4) Remove the by-pass double feed prevention roller.
(5) Remove the by-pass double feed prevention rubber from the by-pass double feed prevention roller.

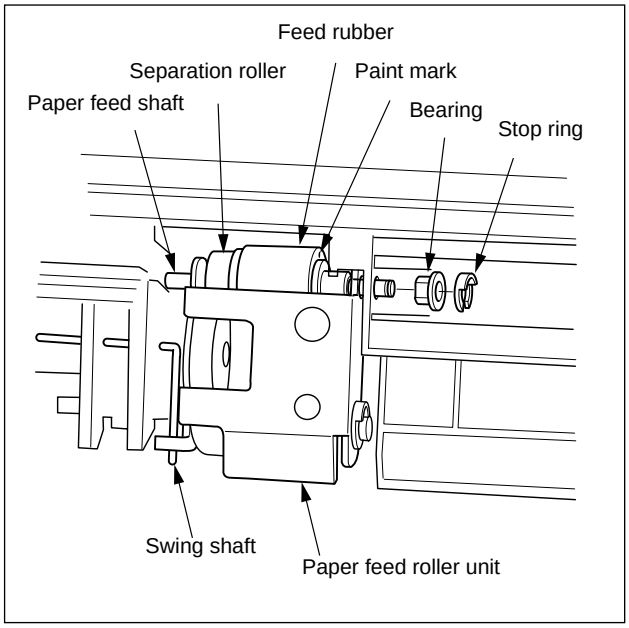


(6) Reinstall the by-pass double feed prevention rubber in the opposite sequence to removal.
Caution: Check that the mounting orientation of the by-pass double feed prevention rubber is correct.

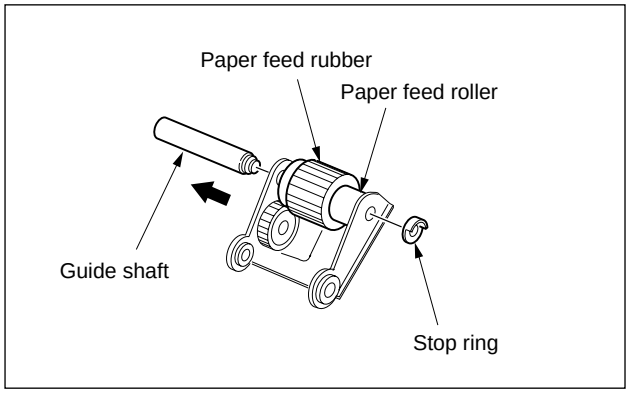
[6] Replacing the Feed Rubber and Paper Feed Rubber

a. Procedure

(1) Remove the paper feed unit.
(2) Remove the one stop ring and bearing.
(3) While pulling out the paper feed shaft, remove the separation roller from the paper feed roller unit.



(4) Remove the stop ring, then pull out the guide shaft in the direction of the arrow and remove the paper feed roller.



(5) Remove the feed rubber from the feed rubber.
(6) Remove the paper feed roller from the paper feed rubber.
(7) Reinstall the above parts in the sequence to remobval.

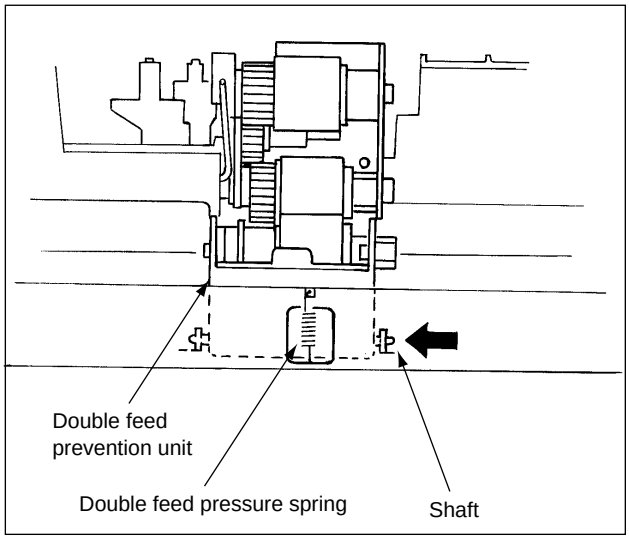
Caution 1: Check that the mounting orientation of each roller rubber is correct.

Caution 2: Install each roller rubber so that the swing shaft gets under the paper feed roller unit.

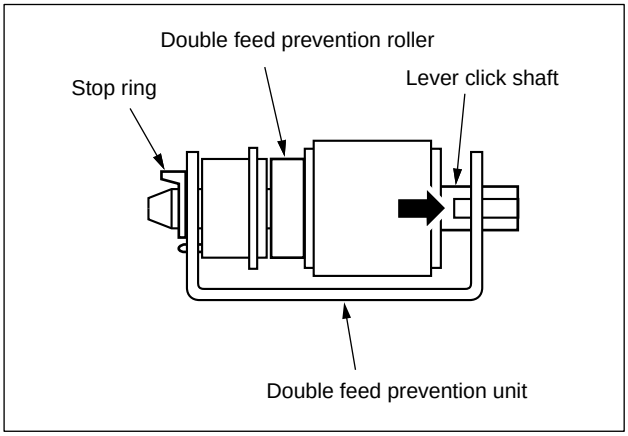
[7] Removing and Reinstalling the Double Feed Prevention Roller

a. Procedure

(1) Remove the paper feed unit.
(2) Remove the double feed pressure spring from the double feed prevention unit.
(3) While pressing the shaft, remove the double feed prevention unit from the paper unit.



(4) Remove the stop ring, then pull out the lever click shaft while pushing the lever of the shaft, and remove the double feed prevention roller.



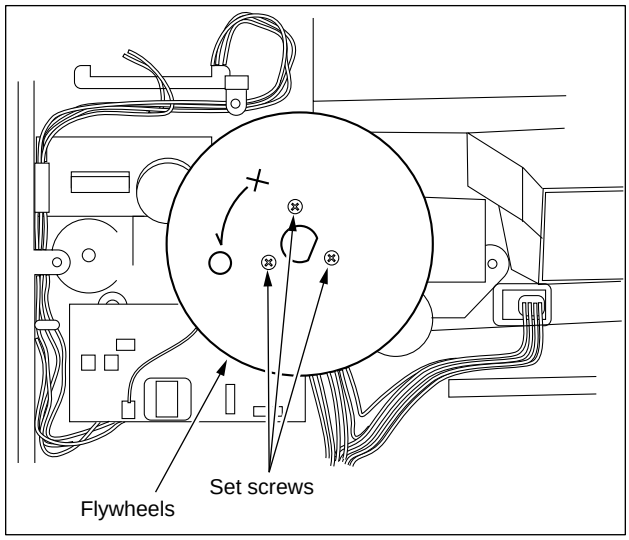
(5) Reinstall the double feed prevention roller in the opposite sequence to removal.
Caution: After reinstallation, check that the double feed pressure spring smoothly moves the double feed prevention roller.

[8] Removing and Reinstalling the 2nd Paper Feed Unit

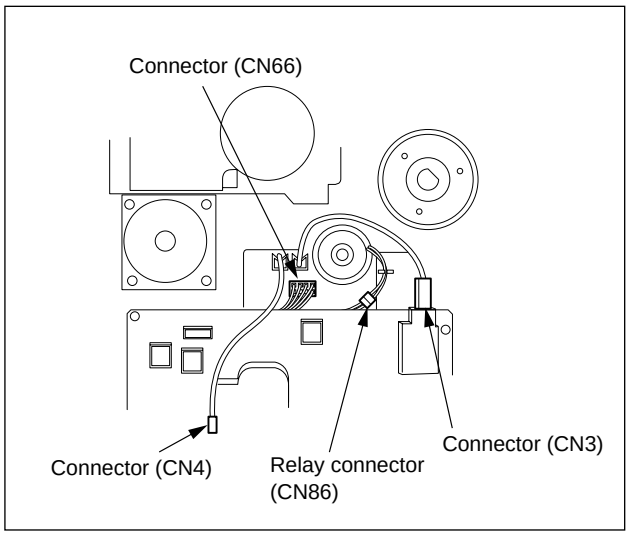
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Removal procedure

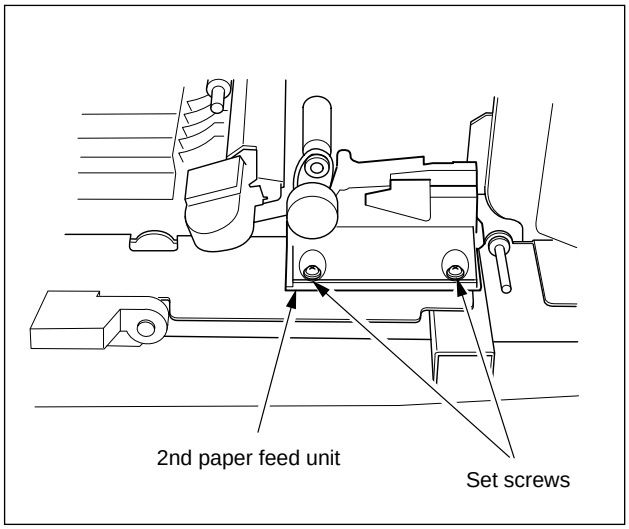
(1) Remove the rear cover. (Refer to “External section”)
(2) Remove the three set screws, then remove the two flywheels.
Caution: When installing the flywheel, be careful of the direction of the stamped mark. Install the flywheel in such a way that the mark on the first faces the main body side, and the mark on the second faces the rear.



(3) Disconnect the three connectors (CN66, CN3, CN4) on the rear of the 2nd paper feed unit and relay connector (CN86).

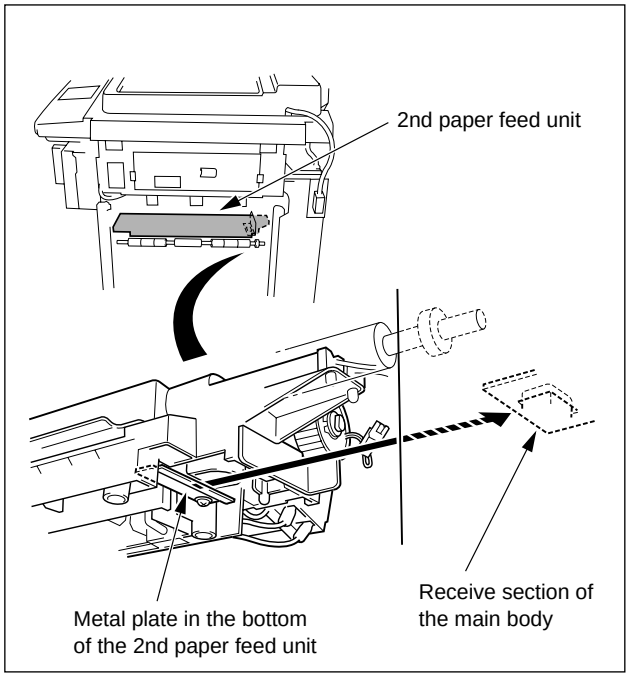


(4) Remove the by-pass paper feed unit from the main body.
(5) Remove the drum unit from the main body.
(6) Remove the two set screws, then remove the 2nd paper feed unit.



b. Reinstallation procedure

(1) Insert the 2nd paper feed unit into the inside of the main body.
(2) Install the 2nd paper feed unit so that the metal plate in the bottom of the 2nd paper feed unit gets under the receive section of the main body.



(3) The reminder of the installation procedure is in the opposite sequence to removal.

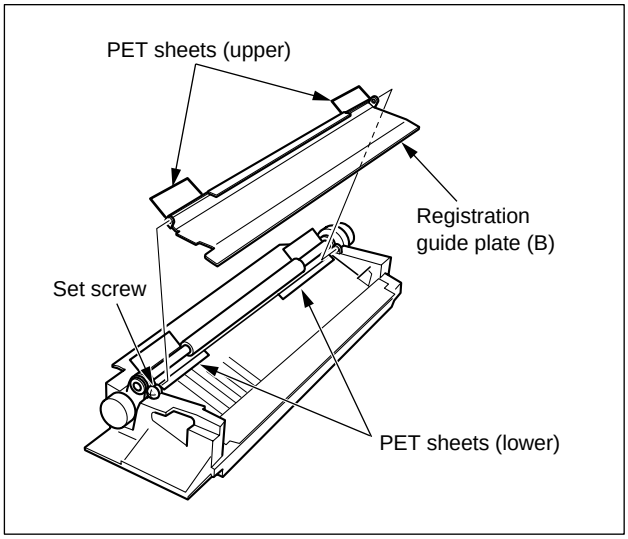
[9] Replacing the Registration Rollers (upper/lower)

a. Procedure

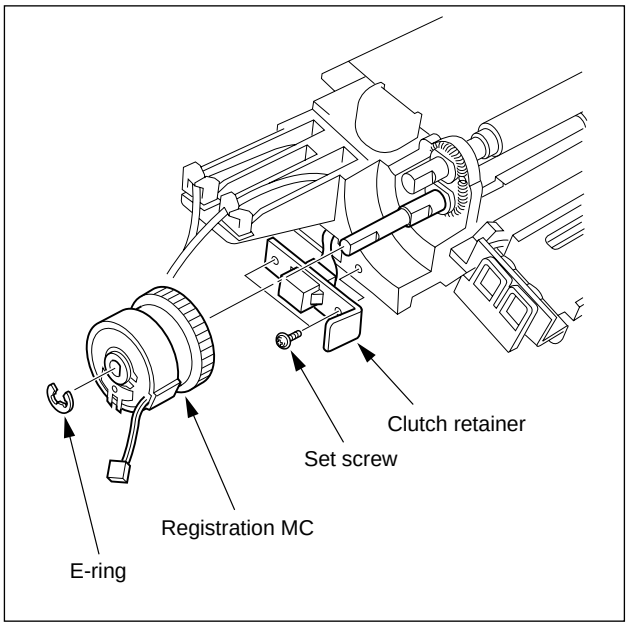
(1) Remove the 2nd paper feed unit.
(2) Loosen the one set screw, then remove the registration guide plate (B).

Caution 1: Be careful not to fold PET sheet (upper/lower).

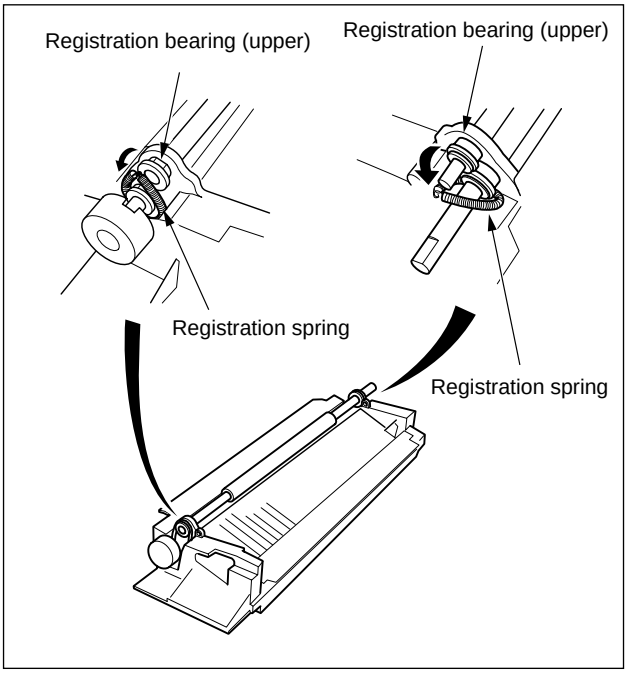
Caution 2: When installing the registration guide plate (B), make sure that PET sheets (upper/lower) goes between the axes of the registration rollers (upper/lower).



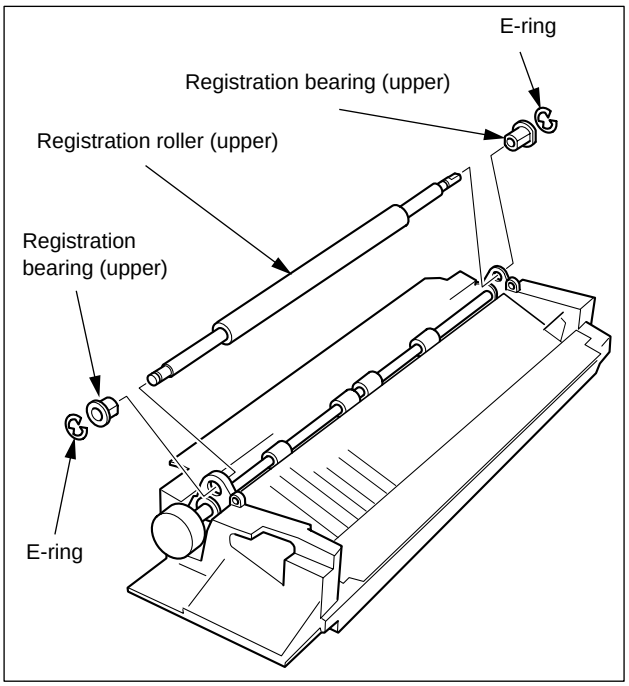
(3) Remove the two set screws, then remove the clutch retainer.
(4) Remove the one E-ring, then remove the registration MC (MC1).



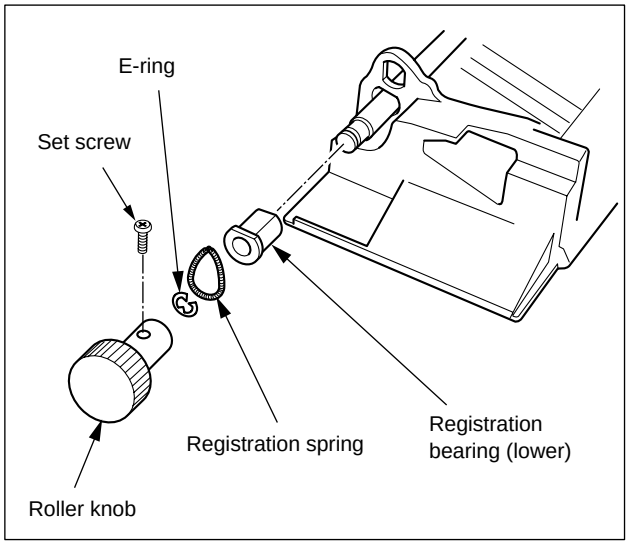
(5) Pull up the registration springs (front and rear) and expand its, then remove the registration springs from the flange of each registration bearing (upper).



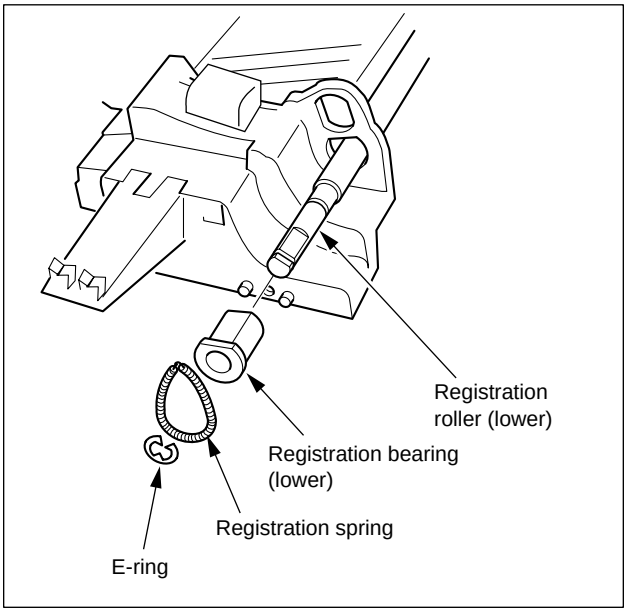
(6) Remove the two E-rings and two registration bearings (upper), then remove the registration roller (upper).



(7) Remove the set screw, then remove the roller knob.
(8) Remove the E ring, then remove the registration bearing (lower) and the registration spring.



(9) Remove the one E-ring, then remove the registration bearing (lower) and registration spring.
(10) Remove the registration roller (lower) from the 2nd paper feed unit.



(11) Reinstall the registration rollers (upper/lower) in the opposite sequence to removal.

Caution 1: When installing the registration bearing (lower), flange section is directed downwards.

Caution 2: Removing and reinstalling the registration spring with hooked the both ends of the spring.

Caution 3: When installing the registration spring, the hook section is between the registration bearing (upper) and registration bearing (lower).

Caution 4: When installing the registration clutch, insert the clutch retainer into the groove of the stopper section.

FIXING UNIT

[1] Removing and Reinstalling the Fixing Unit

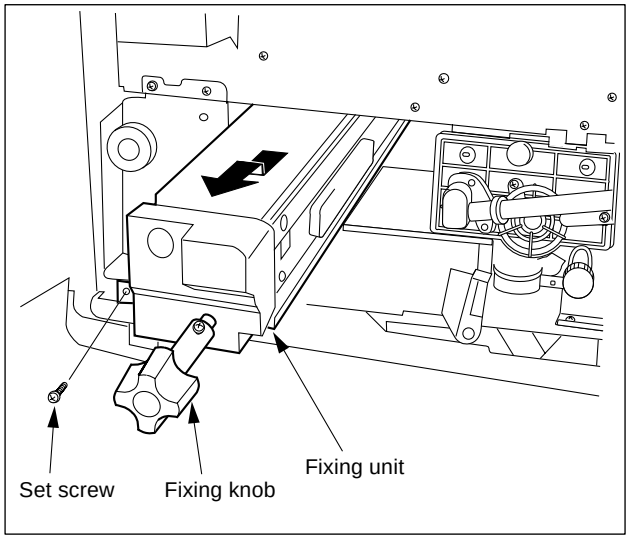
⚠**Caution:** **Be sure that the power cord has been unplugged from the power outlet.**

⚠**Caution:** **Because the fixing unit is extremely hot soon after its switch is turned OFF, ensure that the fixing unit has cooled down sufficiently before working on it.**

Caution: After uninstalling the fixing unit, make sure to screw the set screw.

a. Procedure

(1) Open the front door, then remove the one set screw holding the fixing unit.
(2) Hold the fixing knob and pull out. If it will not pull out in the horizontal direction, lift it up a little while pulling it out.



(3) Reinstall the fixing unit in the opposite sequence to removal.

[2] Replacing the Fixing Heater Lamps 1 and 2 (L2 and L3)

⚠**Caution:** **Do not touch the fixing heater lamp with the bare hands.**

Caution 1: Install the fixing heater lamp with the manufacture mark facing the drive gear side.

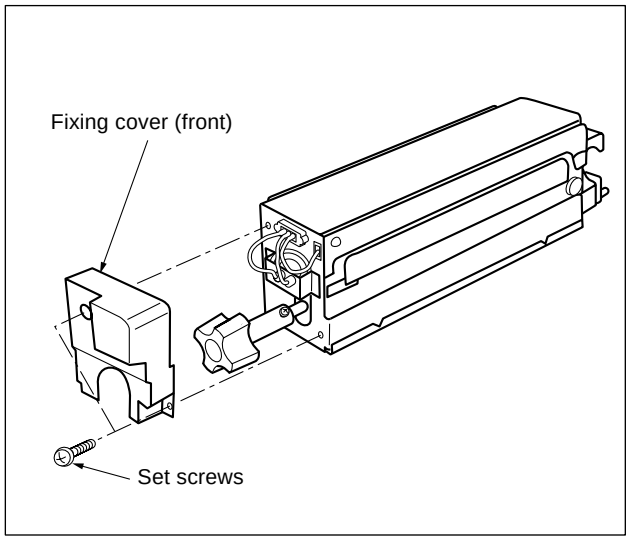
Caution 2: Avoid touching the inside of roller with the fixing heater lamp .

Caution 3: Install the fixing heater lamp so that small rated power consumption is in the paper exit side and large is paper feed side.

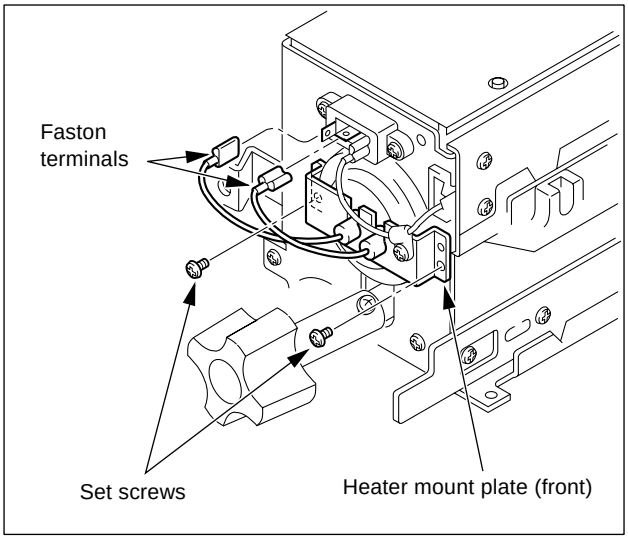
Caution 4: Be careful of the installation orientation of the faston terminal at the rear side.

a. Procedure

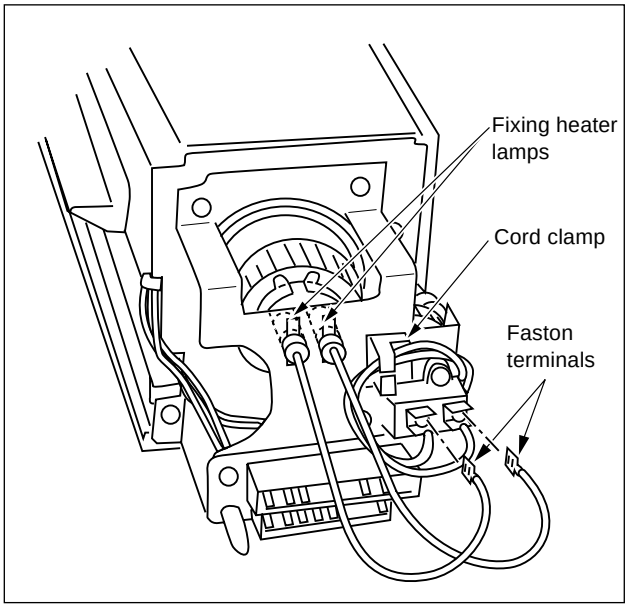
(1) Remove the fixing unit from the main body.
(2) Remove the two set screws, then remove the fixing cover (front).



(3) Disconnect the faston terminal at the front side of each fixing heater lamp.
(4) Remove the two set screws, then remove the heater mount plate (front).



(5) Free the two wires from the cord clamp at the rear of the fixing heater lamp.
(6) Disconnect the faston terminal at the rear side of each fixing heater lamp.
(7) Stretch the wire of the faston terminal at the rear side and pull out each fixing heater lamp towards you.



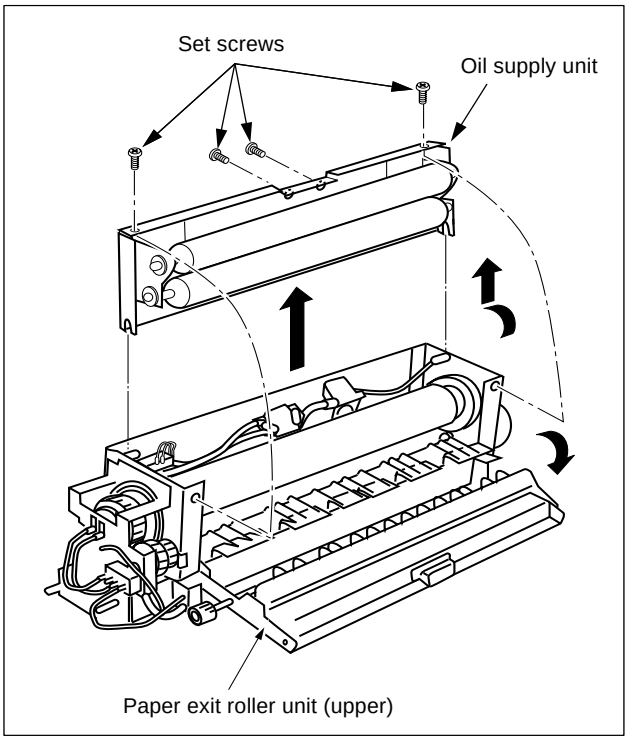
(8) Reinstall the fixing heater lamps in the opposite sequence to removal.

[3] Replacing the Fixing Cleaning Roller, Fixing Roller (A) and Fixing Cleaning Pad

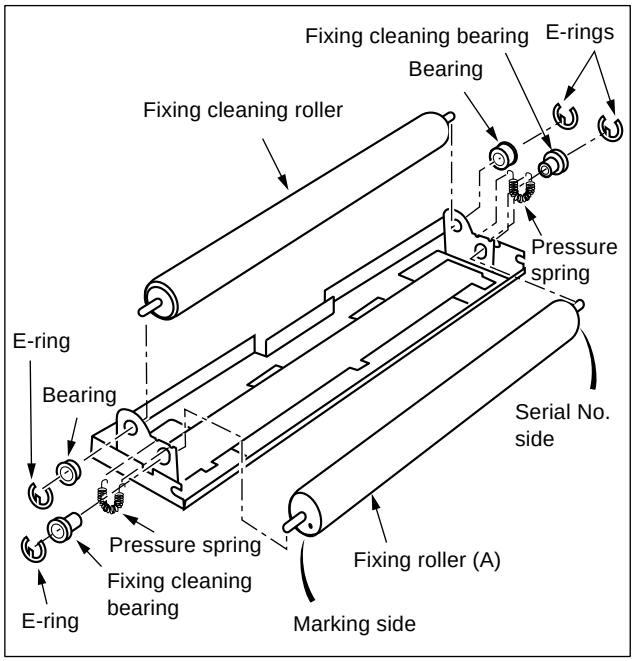
Caution: When installing the oil supply unit, hit it downward to fix it with the set screws.

a. Procedure

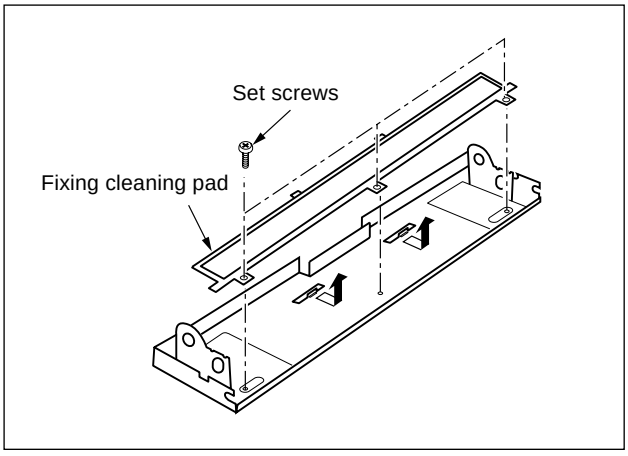
(1) Remove the fixing unit from the main body.
(2) Open the paper exit roller unit (upper).
(3) Remove the four set screws, then open the oil supply unit in the upward direction and remove it in the direction of the arrow.



(4) Remove the two E-rings (front and rear), then remove the fixing cleaning roller.
(5) Remove the two pressure springs (front and rear).
(6) Remove the two E-rings and fixing cleaning bearings (front and rear), then remove the fixing roller (A).
Caution: When installing the fixing roller (A), be careful of the mounting direction.



(7) Remove the three set screws, then remove the fixing cleaning pad.



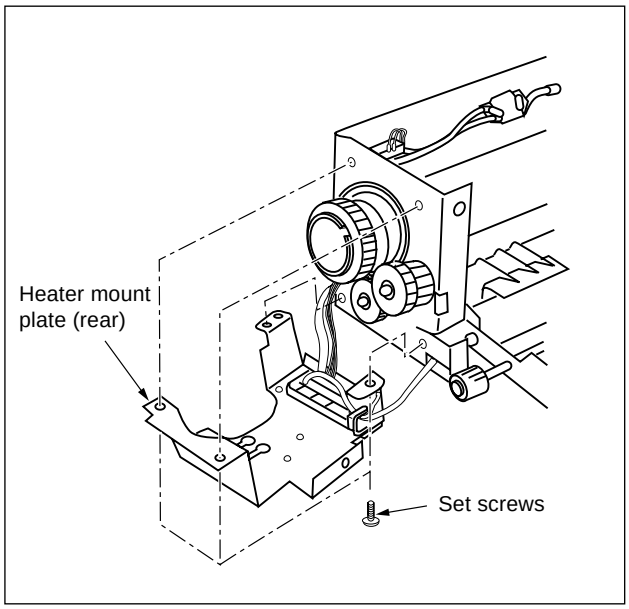
(8) Reinstall the above parts in the opposite sequence to removal.

[4] Removing and Reinstalling the Fixing Roller (upper)

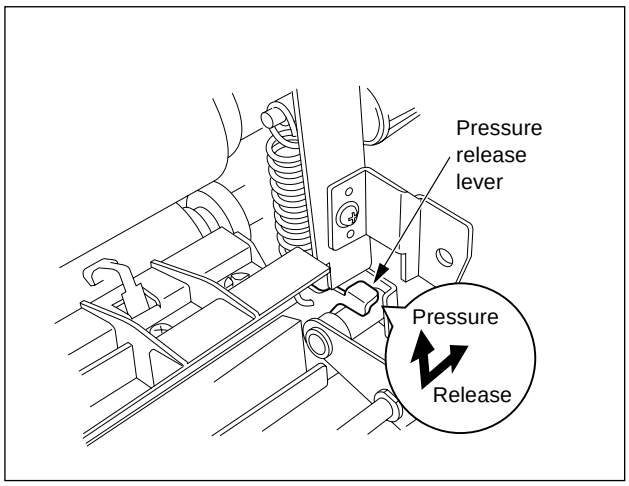
Caution: When replacing the heat insulation sleeve, apply tri-fluorocarbon to the inside of the heat insulation sleeve, and insert it into the fixing roller (upper).

a. Procedure

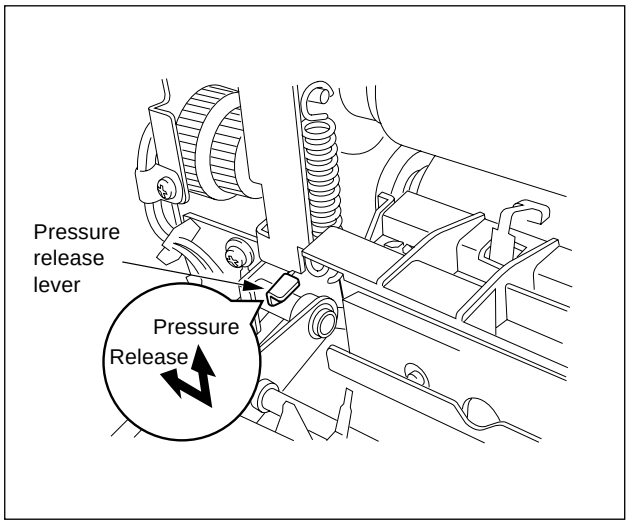
(1) Remove the fixing unit from the main body and remove the oil supply unit from the fixing unit.
(2) Remove the two fixing heater lamps.
(3) Remove the four set screws, then remove the heater mount plate (rear) from the fixing unit.
At this time, place the fixing unit on a stable platform the extent to which is 5 cm and do not strain the bind wiring from the fixing unit.



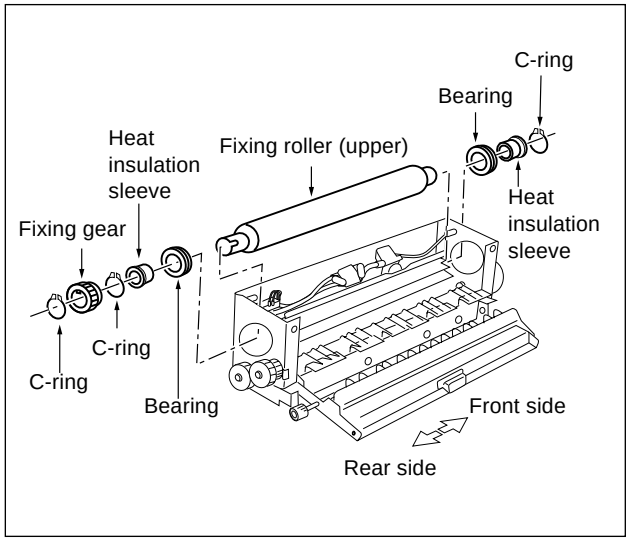
(4) Move the pressure release lever at the front side to the release position with a pair of pliers.



(5) Move the pressure release lever at the rear side to the release side in the same way.



(6) Remove the one C-ring, fixing gear and C-ring on the rear side.
(7) Remove the C-ring on the front side.
(8) Remove the two heat insulation sleeves (front and rear) and bearing on the front and rear side.
(9) Remove the fixing roller (upper).



(10) Reinstall the fixing roller (upper) in the opposite sequence to removal.

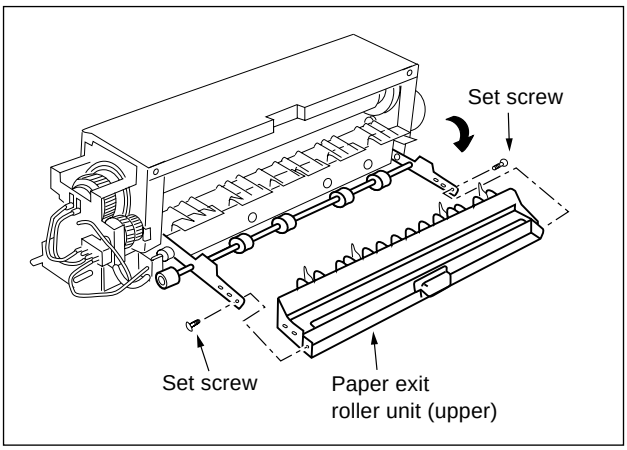
[5] Removing and Reinstalling the Fixing Claw (upper)

Caution 1: When installing the fixing claw (upper), be careful of the installation orientation.

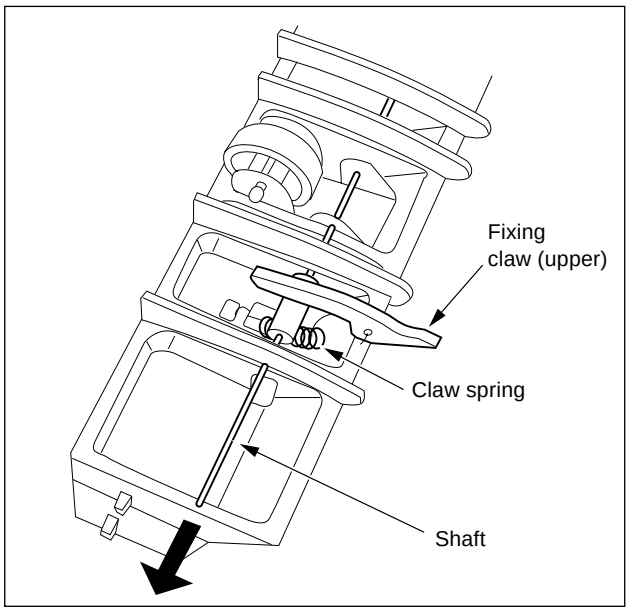
Caution 2: The fixing claw (upper) should be firmly caught in the claw spring.

a. Procedure

(1) Remove the fixing unit from the main body.
(2) Open the paper exit roller unit (upper).
(3) Remove the two set screws, then remove the paper exit roller unit (upper).



(4) Remove the four claw springs from the fixing claws (upper).
(5) Pull out the shaft holding the fixing claws (upper), then remove the four fixing claws (upper).



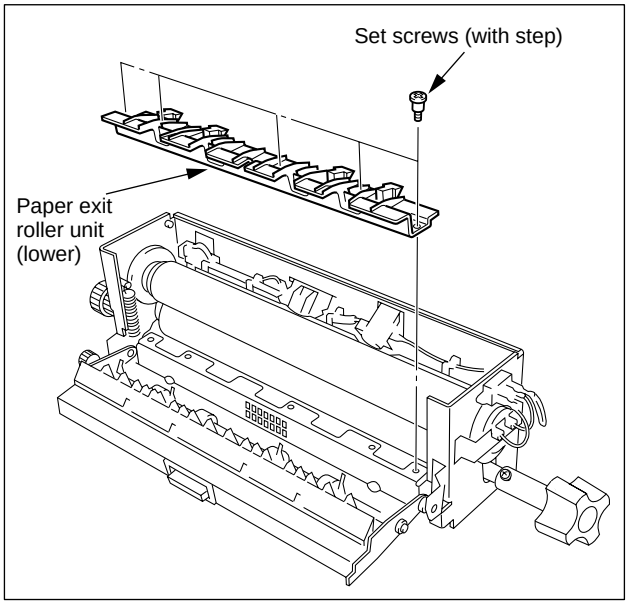
(6) Reinstall the fixing claw (upper) in the opposite sequence to removal.

[6] Removing and Reinstalling the Paper Exit Roller Unit (lower)

Caution: When installing the paper exit roller unit (lower), be sure not to damage the roller by the claw.

a. Procedure

(1) Remove the fixing unit from the main body.
(2) Open the paper exit roller unit (upper), then remove the oil supply unit.
(3) Remove the five set screws (with step) holding the paper exit roller unit (lower).
(4) Be careful so that the fixing claw (lower) does not damage the fixing roller and remove the paper exit roller unit (lower) from the fixing unit.

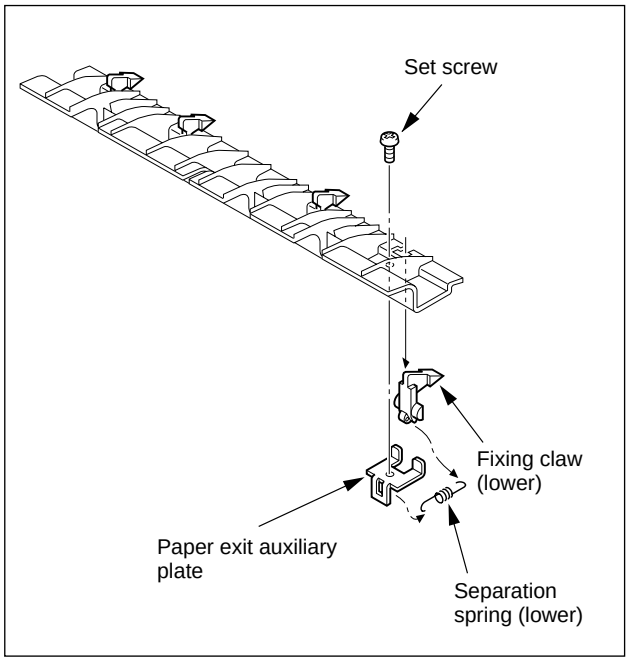


(5) Reinstall the paper exit roller unit (lower) in the opposite sequence to removal.

[7] Removing and Reinstalling the Fixing Claw (lower)

Caution: The fixing claw (lower) should be firmly caught in the claw spring.

a. Procedure
(1) Remove the fixing unit from the main body.
(2) Remove the paper exit roller unit (lower).
(3) Remove the four separation springs (lower) from the fixing claws (lower).
(4) Remove the one set screw each, then remove the four paper exit auxiliary plates.
(5) Remove the four fixing claws (lower).

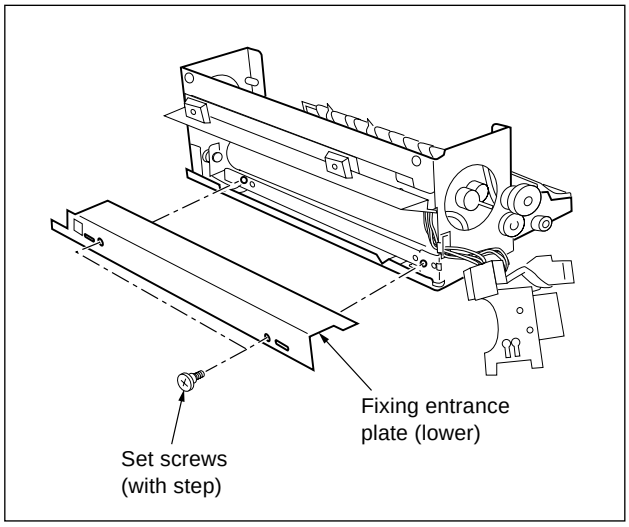


(6) Reinstall the fixing claw (lower) in the opposite sequence to removal.

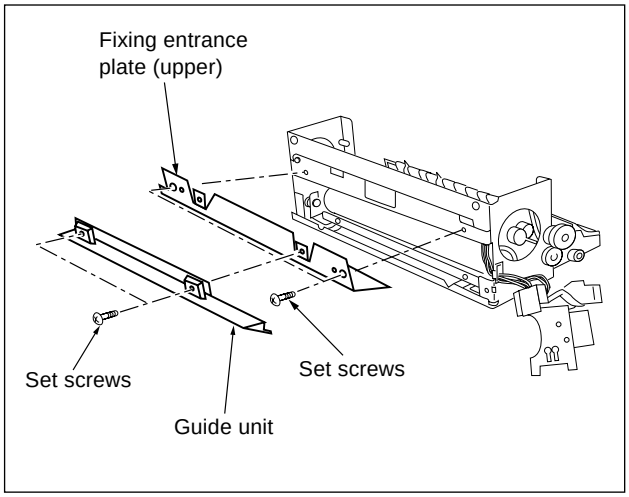
[8] Removing and Reinstalling the Fixing Roller (lower)

a. Procedure

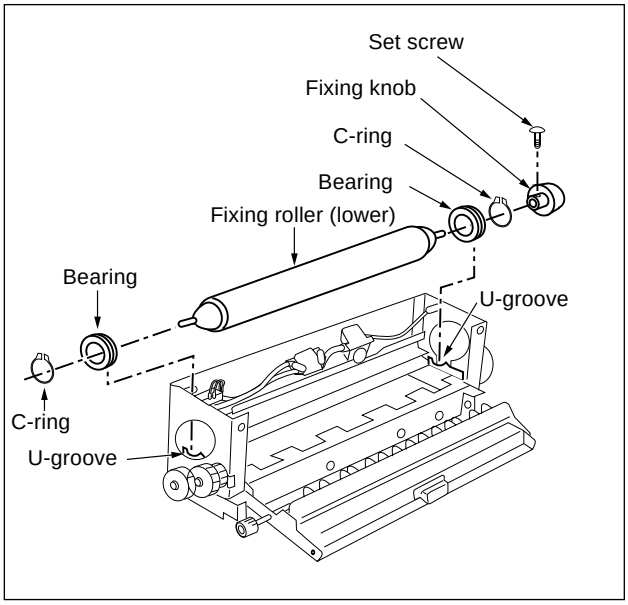
(1) Remove the fixing unit from the main body.
(2) Remove the fixing roller (upper) from the fixing unit.
(3) Remove the two set screws (with step), then remove the fixing entrance plate (lower).



(4) Remove the two set screws, then remove the guide unit.
(5) Remove the two set screws, then remove the fixing entrance plate (upper).



(6) Remove the paper exit roller unit (lower).
(7) Remove the fixing roller (lower) from the fixing unit.
(8) Remove the one set screw, then remove the fixing knob from the fixing roller (lower).
(9) Remove the two C-rings (front and rear), then remove the bearings (front/rear) from the fixing roller (lower).



(10) Reinstall the fixing roller (lower) in the opposite sequence to removal.
Caution: When installing the bearing, make sure that the flange of the bearing set into the U-groove of the fixing unit securely.

[9] Removing and Reinstalling the Fixing Temperature Sensor 1 and 2 (TH1 and TH2)

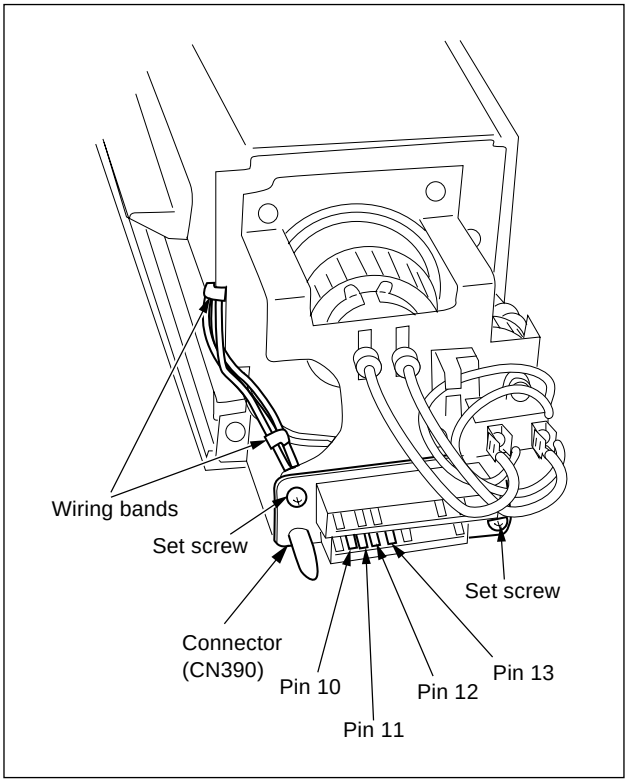
⚠**Caution: After reinstalling fixing temperature sensor 2 and check that the sensor wires are not touching with the fixing roller (upper).**

⚠**Caution: After installing the fixing temperature sensor 2, check that sensor section of the fixing temperature sensor 2 contact with the fixing roller (upper).**

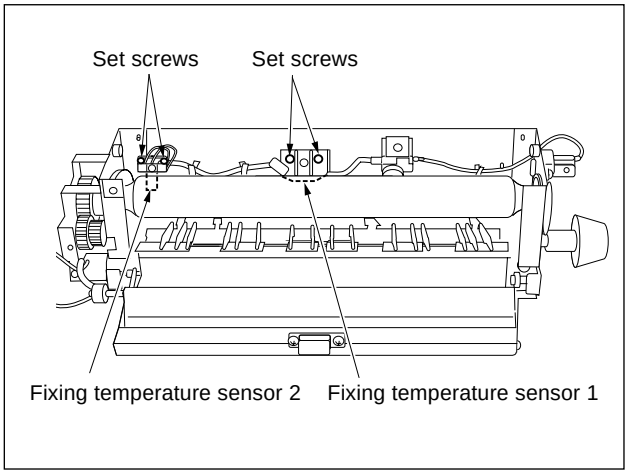
⚠**Caution: Be sure to apply paint lock to the set screw of the installed sensor.**

a. Removal procedure

(1) Remove the fixing unit from the main body.
(2) Remove the oil supply unit from the fixing unit.
(3) Remove the two set screws, then release the fastening of the connector (CN390).
(4) Cut the two wiring bands, then remove the pins 10 to 13 of connector (CN390) with tweezers.

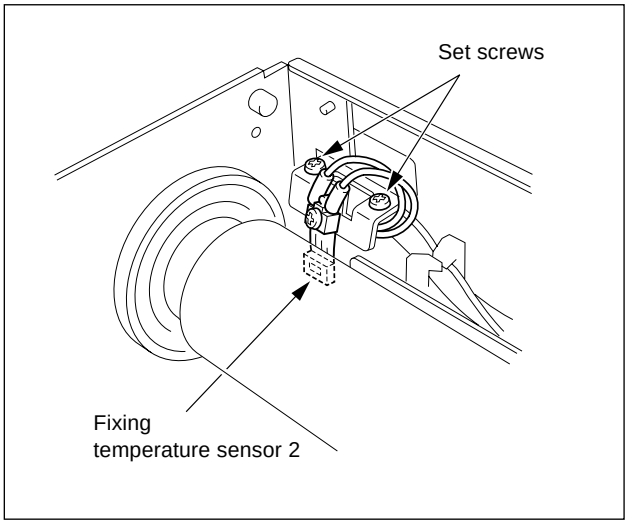


(5) Remove the two set screws, then remove the fixing temperature sensor 1.
(6) Remove the two set screws, then remove the fixing temperature sensor 2.

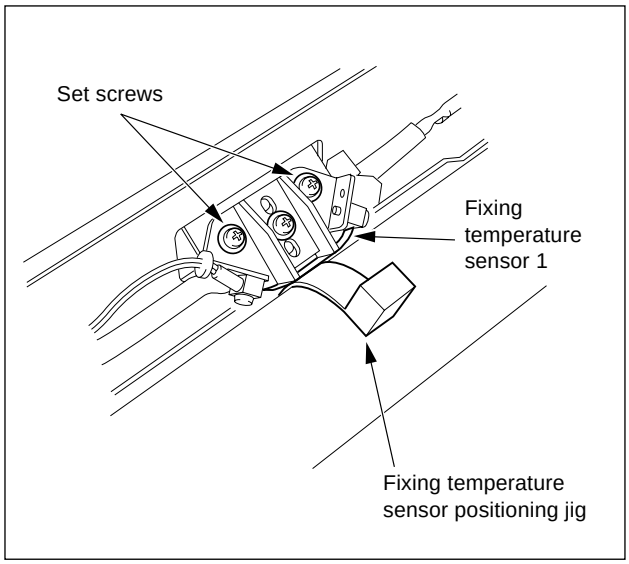


b. Reinstallation procedure

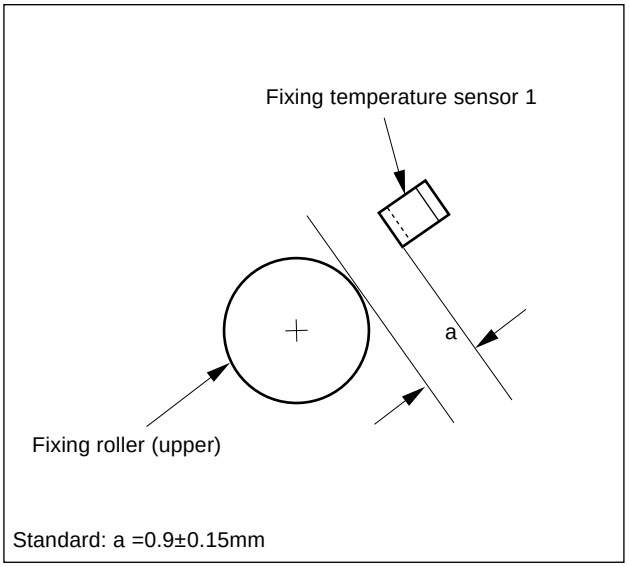
(1) Fix the fixing temperature sensor 2 with the two set screws, then contact the sensor surface to the fixing roller (upper).



(2) Fix the fixing temperature sensor 1 (TH1) with the two set screws.
(3) Set the fixing temperature sensor positioning jig between the fixing temperature sensor 1 and fixing roller (upper), then adjust the clearance between the sensor and the fixing roller (upper) is within the standard value with the two set screws.



(a) Set the distance 'a' between the fixing roller (upper) and fixing temperature sensor 1 so that it is equal to the thickness of the fixing temperature sensor positioning jig.



(4) Coat the set screws of each sensor with paint
(5) Insert the connector pins of each sensor into applicable position of the connector (CN390).
(6) The reminder of the installation procedure is in the opposite sequence to removal.

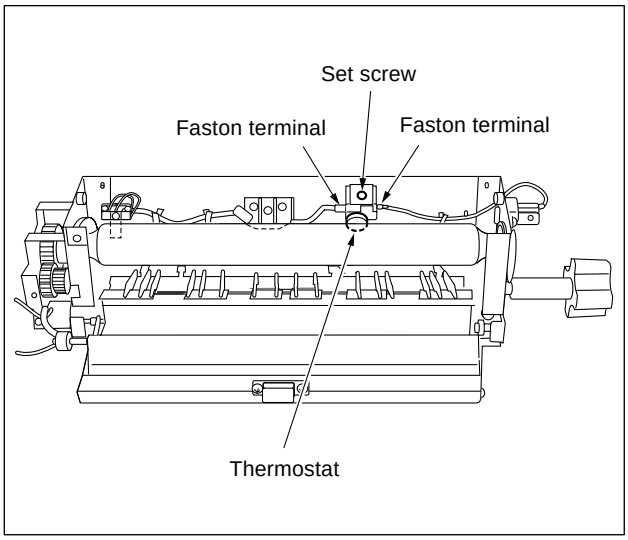
[10] Removing and Reinstalling the Thermostat (TS)

⚠Caution: After reinstalling the thermostat, check that the wiring is not touching with the fixing roller (upper).

⚠Caution: Be sure to coat the set screw of the thermostat with screw lock agent after reinstalling the thermostat .

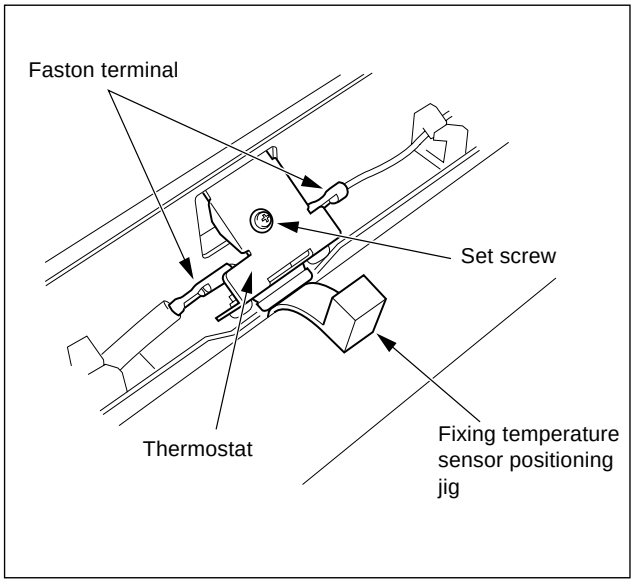
a. Removal procedure

(1) Remove the fixing unit from the main body.
(2) Remove the oil supply unit from the fixing unit.
(3) Disconnect the two faston terminals connected to the thermostat.
(4) Remove the one set screw, then remove the thermostat.

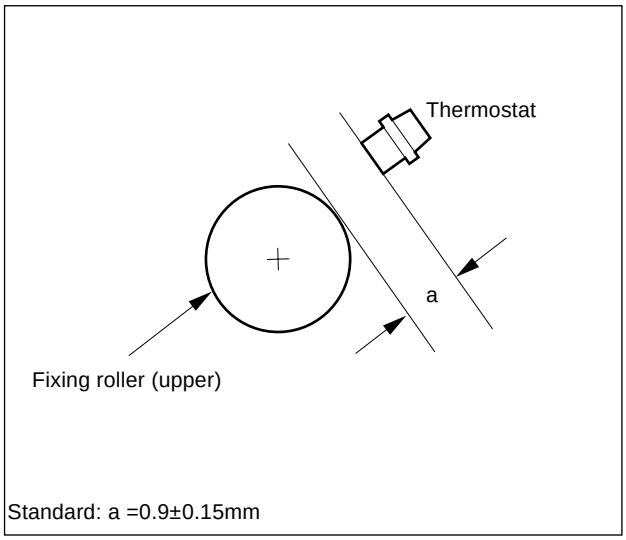


b. Reinstallation procedure

(1) Set the fixing temperature sensor positioning jig between the thermostat (TS) and the fixing roller (upper), then fix the thermostat with the set screw so that the clearance between the thermostat and the fixing roller (upper) is the standard value.



(a) Set the distance 'a' between the fixing roller (upper) and the thermostat so that it is equal to the thickness of the fixing temperature sensor positioning jig.



(2) Coat the set screw of the thermostat with paint lock agent.
(3) Connect the two faston terminals.
(4) The reminder of the installation procedure is in the opposite sequence to removal.

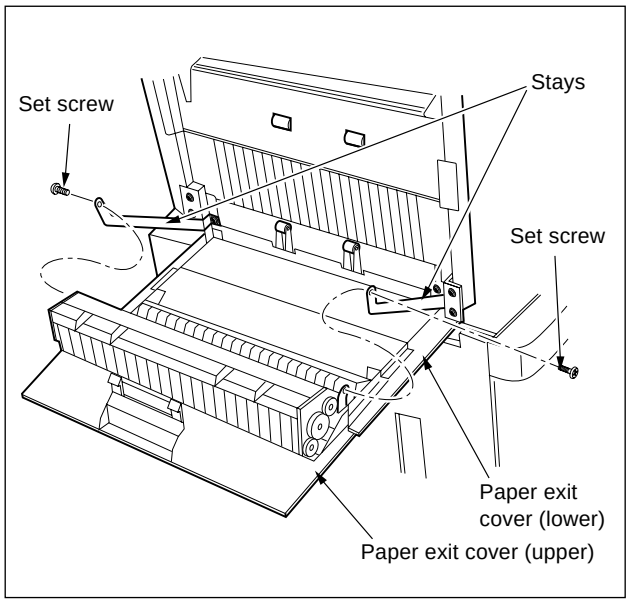
REVERSAL AND PAPER EXIT SECTION

[1] Removing and Reinstalling the Reversal and Paper Exit Unit

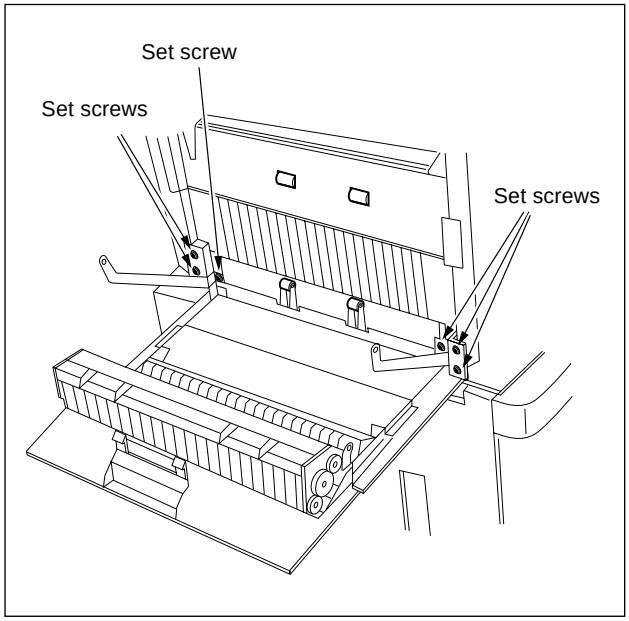
Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Remove the side cover (left) and rear cover of the main body.
(Refa to “Exterval section”)
(2) Open the paper exit cover (upper).
(3) Remove the two set screws for the stay of the reversal and paper exit unit, then slowly open the paper exit cover (lower).



(4) While holding the reversal and paper exit unit, remove the six set screws, then remove the reversal and paper exit unit.



(5) Reinstall the reversal and paper exit unit in the opposite sequence to removal.

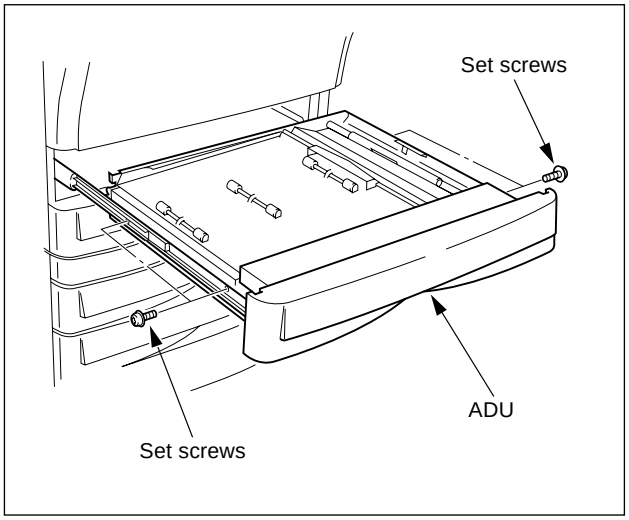
ADU SECTION

[1] Removing and Reinstalling the ADU

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Pull out the ADU, then remove the four set screws (two screws for right/left respectively).
(2) Lift up the ADU, then remove it.



(3) Reinstall the ADU in the opposite sequence to removal.

Konica

7045

SERVICE SECTION

ADJUSTMENT

HOW TO USE THE ADJUSTMENT SECTION

[1] Construction

This section details adjusting items and procedures. Use this section for making adjustments and as a checklist before implementing corrective measures in the field.

1. Does the power supply meet the requirements?
2. Is the power supply properly grounded?
3. Is the machine sharing its power source with another high current consumption machine that draws large currents intermittently? (e.g. an elevator, air conditioner, or other source of electrical consumption)
4. Is the installation environment suitable?
   a. The machine must be installed in a well-ventilated place free from high temperature, high humidity and direct sunlight.
   b. The machine must be installed on a level floor.
5. Does the cause of a defective image lie in the original itself?
6. Is the density adjusting control at the proper position?
7. Are the original glass and RADF platen guide clean?
8. Is the correct paper being used for the copy?
9. Are the copying materials and parts replaced when they reach the end of their usable life? (developer, drum, cleaning blade, etc.)
10. Is there toner in the toner bottle?

The following items should also be observed when repairing the machine.

1. Only one side of the AC power line is disconnected when the SW 1 (main power) of this machine is turned off. Always unplug the machine before beginning work. If absolutely necessary to work with the power on, exercise care to avoid being caught in the scanning rear of the exposure unit.
2. Special care should be taken when handling the fixing unit since it operates at extremely high temperatures.
3. The developing unit is surrounded by a strong magnetic field. Keep watches and metering equipment away from it.
4. Avoid scarring the drum with tools or similar objects.
5. Do not touch IC pins with your bare hands.

ADJUSTMENTS WHEN REPLACING PARTS

Adjustments (including checks) and settings are not only required when a defective copy image occurs, but also after replacing or reinstalling certain parts.

[How to use the tables]

The following items are used in the tables throughout this section.

1. Mode

Indicates the adjustment mode.

["P"] : P mode

["25"] : 25 mode

["36"] : 36 mode

["47"] : 47 mode

2. Codes

Indicates the applicable code and/or Copy Quantity Setting button for each mode.

3. Conditions

New: Indicates adjustment (including check) is required when replacing a new part.

Reinstall: Indicates adjustment (including check) is required when a part has been re-installed.

4. Symbols used in the tables

① ② ..... : Indicates there is a priority sequence for adjustments (including checks) and settings.

◯(Empty circle) : Indicates adjustments (including checks) and settings that can be carried out independently.

LIST OF ADJUSTMENT ITEMS

Part Name	Adjustment items	Tray size setting	PM count reset	PM cycle set	Charging grid voltage adjustment	L detection adjustment	Vertical magnification adjustment (Printer, Platen)	Vertical magnification adjustment (RADF)	Horizontal magnification adjustment (Platen)	Restart timing adjustment (copier system)	Restart timing adjustment (RADF)	Paper feed loop amount adjustment	Leading edge original erasure adjustment	Centering adjustment	Image read point adjustment	PWM/Gamma adjustment	RADF scanning density adjustment	Non-image area erase check	Drum count reset	E-RDH memory check
Mode		25	25	25	36	36	36	36	36	36	36	36	36	36	36	36	36	36	47	47
Code		2	3-1	3-2	1	1	2-1	2-1	2-1	2-2	2-2	2-3	2-4	2-5	2-6	6-1	6-2	6-3	91-1	198
Drum	New		◯		②											③			①	
Developer	New		◯			①*2														
Charging control plate	New				①															
High voltage unit 1	New				①															
Write unit	New/ Re						①	②	③	④	⑤		⑥	⑦		◯				
Parameter memory board	New	◯	◯	◯	◯	◯*1	①	②	③	④	⑤	⑥	⑦	⑧	⑨	◯	◯	⑩		
Rubber roller for paper feed unit	New						①	②		③										
RADF	New/ Re						①	②			③	④	⑤	⑥			⑦			
RADF slit glass (original glass (1))	New																◯			
Expansion memory	New/ Re																			◯
LCT (DB-608) paper size setting	–	◯																		
Toner control sensor board	New															◯				

- "New" means replace with a new part and "Re" means to reinstall the part.
- The circles will appear above a number when there is an adjustment priority.

∗1:When the PRMB (parameter memory board) is replaced, remember to replaced the developer before conducting the L detection adjustment.

∗2:After replacing the developer, be sure that you do not make any copies until you have first carried out L detection adjustment.

MODE SELECT MENU

Each adjustment mode is selected by conducting special operations:

[1] Setting Method

The following modes can be selected on the screen without turning OFF/ON the power switch:

1. Normal mode
2. Adjustment mode (36 mode)
3. Memory setting mode (25 mode)
4. Key ope mode (Key operator mode)
5. I/O check mode (47 mode)
6. Exit

Step	Operation procedure
1	Turn on the main and sub power switches.
2	Press the P button, and wait until the message “Please enter Service password” appears.
3	Input 9272 as the password and press the Start button. (The password is fixed and cannot be changed.)
4	**[Mode Select Menu Screen]** Press the key of the mode to be selected on the screen. To return to the Mode Change Menu Screen, keep pressing the P button until the screen appears.
5	When the adjustment ends, press 6. EXIT key and the basic screen will appear.

CHECK OF COUNT VALUE WITH P MODE

The P mode enables to display of the following parameters by using the P button:

Total count

Total count start date (Note 1)

PM count/PM count limit (Note 2)

PM count start date (Note 2)

Printer count (Note 3)

Scanner count (Note 3)

Drum count (Note 2)

Development count (Note 2)

Note 1: Displayed only when address 22-7 of "1. Software switch setting" in the 25 mode is set to '1'**.**

Note 2: Displayed when the check button on the P mode screen is pressed.

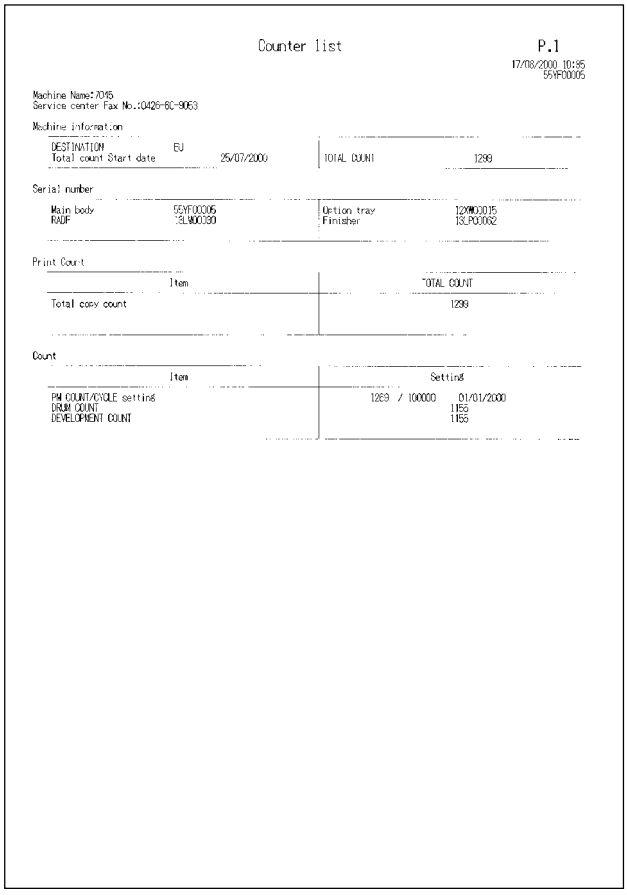
Note 3: Displayed when an option is installed.

[1] How to Use P Mode

1. Turn on the SW1 (main power) and SW2(sub power) to display the basic screen.
2. Press the P button.
3. The P mode screen appears, and the total count value appears.

   When an option is installed, the counter values for the printer and scanner also appear.

   The counter that appears differs depending upon the installed option.
4. If you press the check button on the P mode screen, service-related counters that indicate the PM count, and so on, appear.
5. To output the count value list, press the Print key.



Counter list P.1

17/08/2000 10:35
55YF00005

Machine Name:7015
Service center Fax No.:0426-60-9063

Machine information

DESTINATION	EU		
Total count Start date	25/07/2000	TOTAL COUNT	1299

Serial number

Main body	55YF00005	Option tray	12XM00015
RADF	13LM00389	Finisher	13LP00062

Print Count

Item	TOTAL COUNT
Total copy count	1299

Count

Item	Setting	
PM COUNT/CYCLE setting	1299 / 100000	01/01/2000
DRUM COUNT	1155	
DEVELOPMENT COUNT	1155	

6. Press the OK key or the stop/clear button to return to the basic screen.

25 MODE

<List of adjustment items for 25 mode>

Adjustment item menu			Remarks
1. Software SW			Refer to “List of software SW”.
2. Paper size			
3. PM COUNT/CYCLE	1. PM COUNT reset		
	2. PM CYCLE set		
4. Collecting data	1. Count data	Collecting data-1 (copy count by each size) (RADF paper passage count)	Normally only collection data-1 can be selected. In order to select collecting data-2 to 4, 25 mode SW needs to be changed.
		Collecting data-2 (JAM occurrence count by each point)	
		Collecting data-3 (copy count by each copy mode)	
		Collecting data-4 (SC occurrence count : F code)	
	2. Date count data		
5. Parts counter	1. Count of parts (Fixed)		49 items
	2. Count of parts (Named)		30 items
6. Password setting	1. Key operator password set		4 digits
	2. E.K.C. master key code set		8 digits
	3. Weekly timer master key set		4 digits
7. Service TEL No.			Telephone & Fax. No. of service center setting.
8. Serial number			Main body and option serial No. display and destination setting
9. ROM version			Displays the version numbers of the ROM that perform overall control, image control, operation panel control, optics control, and the also the version numbers of the ROM that control the RADF, finisher, and any other option that are installed.
10. KRDS setting	1. Calling time set 2. Host password set 3. KRDS TEL No. Setting 4. KRDS software SW set 5. KRDS Setup calling		
11. ISW			Rewrites the contents of the flash ROM of each board including boards used in options except for a printer.
12. Root counter			Displays the root counter (total counter).
13. Setting date			Sets the starting date of the total counter.

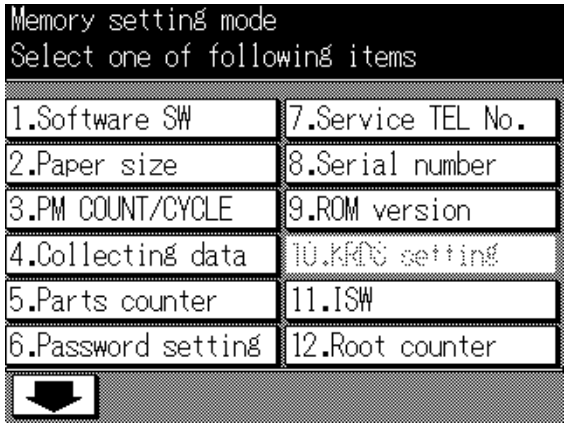
[1] Setting Method

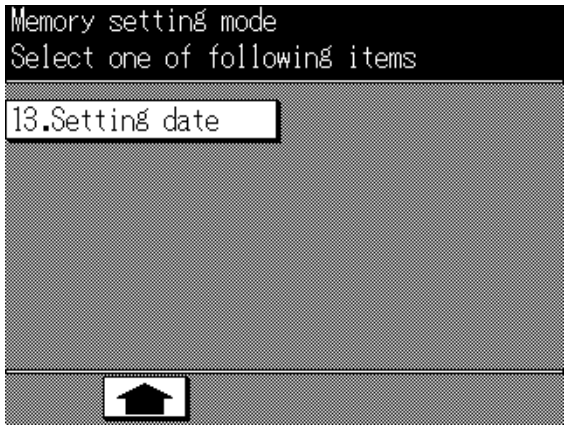
This machine has an adjustment mode called “25 Mode”. This mode enables rewriting of the non-volatile storage and specify other various settings.

1. Turn OFF the SW2 (sub power) when the SW1 (main power) remains ON.
2. Turn the SW2 (sub power) ON while pressing 2 and 5 of the numeric keys. The 25 mode menu screen will appear.

   In the 25 mode normal copy operation becomes unavailable.

   [25 Mode Menu Screen]





3. Press the desired item key on the LCD screen. Each setting screen will appear.
4. Enter values in the setting screen for each item.
5. Setting SW2 to OFF cancels the 25 mode.
6. The newly entered values become effective after the machine is restarted.

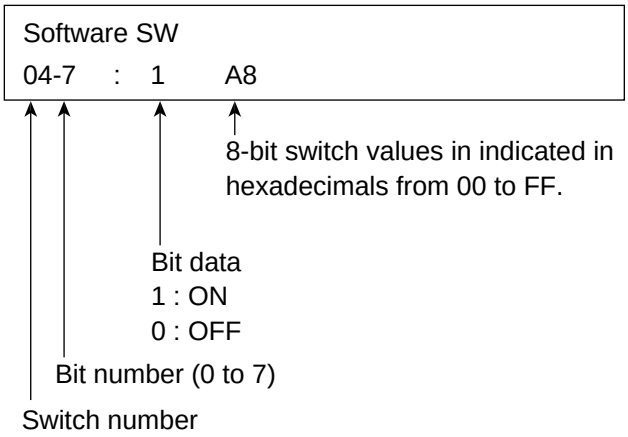
[2] Setting Software SW

1. Setting method

This setting specifies the software switch on the software SW setting screen.

Caution : The bit of the switch is written in the non-volatile memory every time it is changed.

The numbers shown in the message area are defined as follows:


Software SW
04-7 : 1 A8
8-bit switch values in indicated in hexadecimals from 00 to FF.
Bit data
1 : ON
0 : OFF
Bit number (0 to 7)
Switch number

2. Setting procedures

Step	Operation procedure
1	Enter the 25 Mode.
2	**[25 mode menu screen]** Press the [1. Software SW] key.
3	**[Software SW screen]** Select switch number. Use the left [▲] ,[▼] key.
4	Select bit number of the switch. Use the center [▲] ,[▼] key.
5	Select ON (=1) or OFF (=0) of the switch. Use [ON] or [OFF] key. [ON] : Set bit. [OFF] : Clear bit.
6	Press the [Return] key to return to the 25 mode menu screen.

For each switch function, refer to “List of Software switches”.

<List of software switches>

SW No.	BIT	Functions	0	1	Default values		
					Japan	U.S.A.	Europe
SW1	0	Operation when key counter is removed (when using as a copier)	Ignore	Instantaneous stop Jam	0	1	1
	1	A3 (11 x 17) counting method	Count as 1	Count as 2	0	0	0
	2	——	——	——	0	0	0
	3	Selection of maximum number of copies that can be stapled by FNS. (Normal paper)	*1		0	0	0
	4				0	0	0
	5	Selection of maximum number of copies that can be stapled by FNS. (Thick paper)	*2		0	0	0
	6				0	0	0
	7	FNS limit on number of stapled sets	None	Temporary stop after 25 sets of copy *3	0	0	0
SW2	0	Toner replenish stop timing *4	Decide with SW 3-2	Stop after paper exited	0	0	0
	1	——	——	——	0	0	0
	2	——	——	——	1	1	1
	3	——	——	——	1	1	1
	4	——	——	——	0	0	0
	5	1-shot message display at automatic staple mode clearing *5	Yes	No	1	1	1
	6	——	——	——	0	0	0
	7	Prohibition of non-image area erases, repeat (auto) and original position correction	No	Yes	0	0	0
SW3	0	Use F4 size for Latin America destination	No	Yes	0	0	0
	1	F34/F35/F36 latch *6	No	Yes	0	0	0
	2	Toner replenish stop timing 2 *4	When copying ends	Interval between copy set	0	0	0
	3	Return to EKC screen after copying reservation *7	No	Yes	0	0	0
	4	——	——	——	0	0	0
	5	By-pass feed non-standard size selection *8	Size detection effective	Non-standard size handling	0	0	0
	6	——	——	——	0	0	0
	7	——	——	——	0	0	0
SW4	0	Toner level detection (”Supply toner” indication)	*4		0	0	0
	1				0	0	0
	2	Number of copies allowed before machine stops after “Supply Toner” indication.	*4		0	0	0
	3				1	1	1
	4	Non-display of advance/delete keys for job list *9	Display	Do not display	0	0	0
	5	Job stop or nonstop at no toner *4	Does not stop	Stops	1	1	1
	6	Impossibility of coping reservation to coin vender	Can reserve copying	Cannot reverse copying	0	0	0
	7	——	——	——	0	0	0
SW5	0	Destination switchover	*10		0	1	0
	1				0	0	1
	2	——	——	——	0	0	0
	3	——	——	——	0	0	0
	4	Detecting method of 8.5 x 11(Letter) size on RADF	The size is detects as 8.5 x 11(Letter) even if the original reaches to RADF's PS307 (original detect PS 2).	If original reaches to RADF's PS307 (original detect PS 2), the size is detected as 8.5 x 14 (Legal).	0	0	0
	5	Control temperature change	*11		0	0	0
	6				0	0	0
	7	For improved half-tone fixing performance when the machine is first switched on in the morning	No	Yes	0	0	0
SW6	0	Prevention of faulty image at high temperature and high humidity. (When the machine is not turned on for a long period.)	Yes	No	0	0	0
	1	K size selection switch for Taiwan destination	AB series sizes	K sizes available	0	0	0
	2	Paper feed control when thick paper is used	*12		0	0	0
	3				0	0	0
	4	Polygon motor low-speed rotation timing	*13		0	0	0
	5				0	0	0
	6	Polygon motor pre-rotation selection	*14		0	0	0
	7				0	0	0

SW No.	BIT	Functions	0	1	Default values		
					Japan	U.S.A.	Europe
SW7	0	Copy paper priority in image area *15	Non-image area erase	Images on whole page in the platen mode only	1	1	1
	1	Automatic restart after feeding paper *16	Does not restart	Restarts	0	0	0
	2	8.5x11APS (Japan, Europe), A4APS (U.S.A.) *17	Yes	No	1	0	0
	3	Nonstandard-size switch for platen APS (1) *18	Copy on the selected nonstandard size	Copy on the minimum size (B6/A5/5.5x8.5)	0	0	0
	4	Nonstandard-size switch for platen APS (2) *18	Copy on the selected nonstandard size	Copy on A4/8.5x11 size	0	0	0
	5	Password request for 25/36/47 mode *19	No	Yes	0	0	0
	6	Selecttion of A series size (European version)	No	Yes	0	0	0
	7	——	——	——	0	0	0
SW8	0	——	——	——	1	0	0
	1	Changing of key operator fixed magnification setting	Permit	Prohibit	1	0	0
	2	Disabling copying when PM count reached *20	Permit	Prohibit	0	0	0
	3	Adjusting of LCD contrast to help screen	No	Yes	0	0	0
	4	Priority tray when APS is released	*21		0	0	0
	5				0	0	0
	6				0	0	0
	7	Collecting data (25 Mode) *22	No	Yes	0	0	0
SW9	0	Selection of copy quantity limit	*23		0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	——	——	——	0	0	0
	5	——	——	——	0	0	0
	6	P81 messages (Messages displayed on machines installed in convenience stores)	*24		0	0	0
	7				0	0	0
SW10	0	Summer time setting for weekly timer	*25		0	0	0
	1				1	1	1
	2				1	1	1
	3				0	0	0
	4	Magnification display switchover	Auto	1.00	0	0	0
	5	Setting screen message	Guide display	Machine status display	0	0	0
	6	Icon display in third line of LCD message display	No	Yes (Low toner, PM, etc.)	1	0	0
	7	Displaying of JAM code	No	Yes	0	0	0
SW11	0	——	——	——	1	0	0
	1	——	——	——	1	0	0
	2	——	——	——	1	0	0
	3	——	——	——	1	0	0
	4	——	——	——	0	0	0
	5	——	——	——	1	0	0
	6	Tray icon display in LCD size selection area	No	Yes	1	0	0
	7	——	——	——	0	0	0
SW12	0	——	——	——	0	0	0
	1	——	——	——	0	0	0
	2	——	——	——	0	0	0
	3	Setting of PM count at which copying is inhibited	*20		0	0	0
	4				0	0	0
	5				0	0	0
	6	KRDS connection recognition	Not recognize	Recognize	0	0	0
	7	F/E screen switchover (except for F34, F35 and F36) *26	No	Yes	0	0	0

SW No.	BIT	Functions	0	1	Default values		
					Japan	U.S.A.	Europe
SW13	0	——	——	——	0	0	0
	1	——	——	——	0	0	0
	2	——	——	——	0	0	0
	3	——	——	——	0	0	0
	4	——	——	——	0	0	0
	5	——	——	——	0	0	0
	6	Changing the non-image area erase	*27		1	1	1
	7	threshold value			0	0	0
SW14	0	Operation when stapling is not possible (Large size)	*28		0	1	0
	1	Other than A5R, B5R, 5.5 x 8.5R			0	1	0
	2	Operation when stapling cannot be done (small size)	*29		0	1	0
	3	A5R, B5R, 5.5 x 8.5R			0	1	0
	4	Operation when one position stapling is not	*29		0	0	0
	5	available			0	0	0
	6	Operation when two staples are specified but	*30		0	0	0
	7	there are no staples in the positions concerned			0	0	0
SW15	0	——	——	——	0	0	0
	1	Waiting for start of printing when copy reservation (fixing wrinkling countermeasure)	Machine does not wait.	Machine waits.	0	0	0 0
	2	Waiting for start of printing other than copy reservation (fixing wrinkling countermeasure)	Machine does not wait.	Machine waits.	0	0	0
	3	Universal tray changeover screen	Yes	No (special display)	0	0	0
	4	Selection of face-up when the by-pass feed tray is selected by the "No FNS" or "Tray 1 output" setting	Yes	No	0	0	0
	5	"A" series display on universal trays changeover screen	Yes	No	0	0	0
	6	"FNS tray 1 full" detection & auto tray changeover (100 copies)	No	Yes	0	0	0
	7	Auto tray changeover when capacity of FNS tray 2/3 is exceeded	No	Yes	0	0	0
SW16	0	Fixing temperature at low power mode	*31		1	0	0
	1				0	0	0
	2	Toner auto supply	No	Yes	0	0	0
	3	Copy inhibit flag prior to L detection	Copy enabel	Copy inhibit	0	0	0
	4	For improved half-tone fixing performance when the machine is first switched on in the morning	Executed under DIP switch 6-0 condition	Yes	0	0	0
	5	——	——	——	0	0	0
	6	——	——	——	0	0	0
	7				0	0	0
SW17	0	F4 size setting	*32		0	0	0
	1				0	0	0
	2				0	0	0
	3	Printer job setting with key counter installed *38	Printing takes place.	No print	0	0	0
	4	——	——	——	1	1	1
	5	——	——	——	0	0	0
	6	——	——	——	1	1	1
	7	——	——	——	0	0	0
SW18	0	Unit isolation (1) *33	——	——	0	0	0
	1		Tray 1 (main body) can be used	Tray 1 (main body) is isolated	0	0	0
	2		——	——	0	0	0
	3		——	——	0	0	0
	4		Tray 2 (DB upper) can be used	Tray 2 (DB upper) is isolated	0	0	0
	5		Tray 3 (DB middle) can be used	Tray 3 (DB middle) is isolated	0	0	0
	6		Tray 4 (DB lower) can be used	Tray 4 (DB lower) is isolated	0	0	0
	7		DB can be used	DB is isolated	0	0	0

SW No.	BIT	Functions	0	1	Default values		
					Japan	U.S.A.	Europe
SW19	0	Unit isolation (2) *33	Printer board can be used	Printer board is isolated	0	0	0
	1		——	——	0	0	0
	2		——	——	0	0	0
	3		——	——	0	0	0
	4		ADU can be used	ADU is isolated	0	0	0
	5		——	——	0	0	0
	6		——	——	0	0	0
	7		RADF can be used	RADF is isolated	0	0	0
SW20	0	Unit isolation (3) *33	——	——	0	0	0
	1		——	——	0	0	0
	2		FNS tray 2/3 can be used	FNS tray 2/3 is isolated	0	0	0
	3		——	——	0	0	0
	4		Staple can be used	Staple is isolated	0	0	0
	5		——	——	0	0	0
	6		——	——	0	0	0
	7		——	——	0	0	0
SW21	0	Platen size recognition selector switch 1 for Latin America (U.S.A. only)	8.5 x 11 (Letter)	A4	0	0	0
	1	Platen size recognition selector switch 2 for Latin America (U.S.A. only)	8.5 x 11R	A4R	0	0	0
	2	Platen size recognition selector switch 3 for Latin America (U.S.A. only)	8.5 x 14	F4	0	0	0
	3	Copy setting of platen small size (8.5 x 11 or smaller)	Copy as APS detected	Copy as nonstandard size	0	0	0
	4	Job suspension/end at pulling out key counter	If SW1-0:0: Stop paper feed and terminate If SW1-0:1 Immediate-stop jam	If SW1-0:0: Stop paper feed and printing is interrupted If SW1-0:1 Immediate-stop jam	0	0	0
	5	Copy setting of platen small size (A4/8.5 x 11 or smaller)	Copy as APS detected	Copy on A4/8.5 x 11 size regardless of the size detected by APS	0	0	0
	6	Total-counter/key-counter increment operation	Normal operation (Both the total counter and the key counter count up regardless of the mode.)	In the copy mode, both the total counter & key counters count up. In the printer mode, only the total counter counts up.	0	0	0
	7	Countermeasure for by-pass feed special thick paper	No	Yes	0	0	0
SW22	0	Turns ON the sub power switch when the main power switch is turned ON. *34	No	Yes (WUT increase)	0	0	0
	1	——	——	——	0	0	0
	2	——	——	——	0	0	0
	3	——	——	——	0	0	0
	4	——	——	——	0	0	0
	5	Running mode 6 agitation rotation time	4 minutes	2 minutes	0	0	0
	6	——	——	——	0	0	0
	7	Display of starting date on P mode	Do not display	Display	0	0	0

SW No.	BIT	Functions	0	1	Default values		
					Japan	U.S.A.	Europe
SW23	0	Search start tray setting for APS	*35		0	1	0
	1	——	——	——	0	0	1
	2	——	——	——	0	0	0
	3	——	——	——	0	0	0
	4	——	——	——	0	0	0
	5	——	——	——	0	0	0
	6	——	——	——	0	0	0
	7	——	——	——	0	0	0
SW24	0	——	——	——	0	0	0
	1	——	——	——	0	0	0
	2	——	——	——	0	0	0
	3	——	——	——	0	0	0
	4	——	——	——	0	0	0
	5	——	——	——	0	0	0
	6	Changeover of display during operation	Job No. display	Original quantity display	0	0	0
	7	Job start and changeover without print process stop *36	Without process stop	Process stop	0	0	0
SW25	0	Adjustment of leading edge position of reverse side image for image rotation (Note: values larger than the frame erasure dimensions are ignored.)	*37		0	0	0
	1				0	0	0
	2				0	0	0
	3				0	0	0
	4	Image leading edge position adjustment for platen memory copy	*37		0	0	0
	5				0	0	0
	6				0	0	0
	7				0	0	0
SW26	0	——	——	——	0	0	0
	1	——	——	——	0	0	0
	2	——	——	——	0	0	0
	3	——	——	——	0	0	0
	4	——	——	——	0	0	0
	5	——	——	——	0	0	0
	6	——	——	——	0	0	0
	7	——	——	——	0	0	0

*1 : FNS stapling upper limit (Ordinary paper)

Mode	1-3	1-4
50 sheets	0	0
45 sheets	1	0
40 sheets	0	1
35 sheets	1	1

The following switch settings are related:

- SW 2 – 5

  1-shot message display at automatic staple mode clearing.

*2 : Upper limit of number of sheets (thick paper) that can be stapled with FNS

Mode	6-5	6-6
20 sheets	0	0
15 sheets	1	0
25 sheets	0	1
10 sheets	1	1

*3 : FNS limit on number of stapled sets
If this bit is set to "1", then if the user specifies more than 25 stapled sets the copier automatically stops after reaching the 25th set, and displays a message instructing the user to remove the paper and press the START button.

*4 : Toner-replenish stop timing
When the TLD (toner level detector) detects that the toner-out condition has persisted for a fixed length of time, the copier waits an additional number of copies (as specified by SW4 – 0, 4 – 1) and then displays a message “Please supply toner”. (The toner-low condition)

- Toner-level detect (message requesting new toner)

Mode	4-0	4-1
After 100 effective copies	0	0
After 1000 effective copies	1	0
After 2000 effective copies	0	1
After 3000 effective copies	1	1

Following the message display, the copier allows printing of an additional number of copies as set by SW4 – 2, 4 – 3, and will then disable copying.

- Number of copies to copy-disable (following message for new toner)

Mode	4-2	4-3
After almost 0 copy	0	0
After almost 1000 copies	1	0
After almost 2000 copies	0	1
After almost 3000 copies	1	1

However, that the copier will stop only if SW4 – 5 ("Job stop or nonstop at no toner ") is set to "1".

- The toner-low/toner-out condition is cleared by insertion of a new toner bottle (toner-bottle detect sensor OFF/ON).
- The toner-out stop conditions vary according to the settings of SW3 – 2 and SW2 – 0.

*5 : 1-shot message display at automatic staple mode clearing
If 1-shot display is enabled: If the copy limit is exceed during staple-mode operation, a message indicating this appears on the display, and copying continues in sort mode.
Note that this setting is related to the “1-SHOT DISPLAY TIME” setting available under key-operator mode. For information about memory switches, refer to the Instruction Manual.

*6 : F34/F35/F36 latch
In the event of a fixing-related error, the setting changes to "1" so that power OFF/ON will not clear the error condition. After correcting (repairing) the problem, reset this to "0" to re-enable copying.

*7 : Return to EKC screen after copying reservation
If EKC setup is enabled, then if this bit is set to "1" (return to screen) the copier will immediately display the EKC password-request screen following exit of the final sheet for the reserved jobs. If copying is not reserved, the copier will wait 1 minute following job completion before displaying the EKC password-request screen.

*8 : By-pass feed nonstandard size selection
This setting determines whether the system detects the size of the paper in the by-pass tray. If the setting is "1" (handle as nonstandard size), the size is not detected and copying is based on the maximum paper size.

*9 : Non-display of advance/delete keys for job list
Under default conditions, the job list screen allows for deletion or priority changing of jobs that have been stored in E-RDH memory.
If this bit is set to "1" (non-display), however, the advance and delete keys will not appear on the display so that it will not be possible to delete or reorder the reserved jobs.

*10 : Destination switch

Mode	5-0	5-1
Japan	0	0
U.S.A.	1	0
Europe	0	1
Taiwan	1	1

*11: Control temperature setting

Mode	5-5	5-6
Normal control	0	0
Control temperature raised 10°C	1	0
Control temperature lowered 10°C	0	1
Normal control	1	1

*12 : Paper feed control for thick paper

Mode	6-2	6-3
Ordinary	0	0
30PPM	1	0
20PPM	0	1
(Ordinary)	1	1

*13 : Polygon motor low-speed rotation timing
Use these bits to change the start timing of pre-rotation following copy completion.

Mode	6-4	6-5
15 seconds	0	0
30 seconds	1	0
60 seconds	0	1
120 seconds	1	1

*14 : Polygon motor pre-rotation selection
Use these bits to set the speed of polygon-motor rotation during idling state.

Mode	6-6	6-7
No pre-rotation (49,606.3 rpm)	0	0
Pre-rotation (25,000 rpm)	1	0
Stopped	0	1

*15 : Copy paper size priority in image area
This setting determines how the copier handles platen copying when the original size differs from the copy paper size when the AMS setting is cleared. If this bit is set to "1" (whole-page image in platen mode only), then the copier will not erase the area outside of the original (so that area outside of the APS-detected size is also copied).
If this bit is set to "0", then the copier does erase the area outside of the original.
Note that in RADF copying, the copier will always erase the area outside of the original regardless of this setting.

*16 : Automatic restart after paper supplied
This setting determines how copying is restarted if the tray becomes empty while copying is in progress. Under the default setting, the user (after adding paper and setting the tray back in place) must press the START button to resume copying. If this bit is set to "1", however, copying restarts automatically when the tray is set back in place.

*17 : 8.5x11 APS (Japan, Europe), A4 APS (U.S.A.)
If this bit is to "1" (No), the copier will forcibly copy as A4 in Japan/Europe if it detects an original size of 8.5x11, and will forcibly copy as 8.5x11 in U.S.A. if it detects an original size of A4). Under the default setting, APS operates for both A4 and 8.5x11.

*18 : Settings related to nonstandard original sizes

- SW21– 5 Copy setting of platen small size (A4/8.5 x 11 or smaller)
  Selects whether to copy on the APS detected size when APS detected the original as A4 or smaller, or to ignore the APS detected size and copy on A4 (Japan, Europe) or 8.5 x 11 (U.S.A.).

- SW21– 3 (U.S.A. only) Copy setting of platen small size (8.5 x 11 or smaller)
  Selects whether to copy on the APS detected size when APS detected the original as 8.5 x 11 or smaller, or to ignore the APS detected size and copy as nonstandard size.
  When both SW21– 5 and SW 21– 3 are set to “1”, the setting of 21– 5 has priority over the 21– 3.

- SW7– 4 Nonstandard-size switch of platen APS (2)
  Selects whether to copy on A4 (Japan, Europe) or 8.5 x 11 (U.S.A.) when the APS detected the original as nonstandard-size, or to copy on the APS selected nonstandard size.

- SW7– 3 Nonstandard-size switch for platen APS (1)
  Selects whether to copy on B6 (Japan), A5 (Europe) or 5.5 x 11 (U.S.A.) when the APS detected the original as nonstandard-size, or to copy on the APS selected nonstandard size.
  When both SW7– 4 and SW7– 3 are set to “1”, the setting of 7– 4 has priority over the 7– 3.

*19 : Request password for 25, 36, 47 mode
If this bit is set to "1" (Yes), the copier will display a password-request screen before entering service mode. The password is "9272".

*20 : Disable of copying when PM count is reached
SW12 – 3, 12 – 4, and 12 – 5 (Setting of PM count at which copying is disabled) sets the number of copies at which copying is disabled. Note that copying will be disabled only if SW8 – 2 (Disable copying when PM count is reached) is set to "1".

Mode	12-3	12-4	12-5
1000 copies	0	0	0
2000 copies	1	0	0
3000 copies	0	1	0
4000 copies	1	1	0
5000 copies	0	0	1

*21 : Priority tray when APS is released

- This setting sets the tray selection used when APS is set OFF from key-operator mode.
  Priority tray when APS is released

Mode	8-4	8-5	8-6
No priority	0	0	0
Tray 1 (Main body)	0	1	0
DB upper tray	1	1	0
DB middle tray	0	0	1
DB lower tray	1	0	1

*22 : Data Collecting (Mode 25)
If this bit is set to "1" (Yes), then all 25-mode collected data 1 to 4 can be checked. If the setting is "0", then only collected data 1 is available for checking.

*23 : Copy quantity limit

Mode	9-0	9-1	9-2	9-3
No limit	0	0	0	0
1 sheet	1	0	0	0
3 sheets	0	1	0	0
5 sheets	1	1	0	0
9 sheets	0	0	1	0
10 sheets	1	0	1	0
20 sheets	0	1	1	0
30 sheets	1	1	1	0
50 sheets	0	0	0	1
99 sheets	1	0	0	1

*24 : P81 messages (Messages displayed on machines installed in convenience stores and so on.)

Mode	9-6	9-7
Please insert key counter	0	0
Please insert copy card	1	0
Please insert coin	0	1

*25 : Summer time setting for WT (Weekly Timer)

Mode	10-0	10-1	10-2	10-3
0 minute	0	0	0	0
30 minutes	1	1	0	0
60 minutes	0	1	1	0
90 minutes	1	0	0	1
120 minutes	0	0	1	1
150 minutes	1	1	1	1

*26: F/E screen switchover (except for F34, F35, F36)
If this bit is set to "1" (No), all cases except for fixing errors will simply show a message instructing a user to turn the SW2 (sub power) OFF and ON.
If set to "0", all errors will be indicated by error codes.

*27: Changing the non-image area erase threshold value

Mode	13-6	13-7
Dark original mode	0	0
Ordinary original	1	0
External light mis-detection prevention	0	1
None	1	1

*28: Operation if stapling is not possible (large size)
Sizes other than Postcard, A5R, 5.5x8.5R, nonstandard

Mode	14-0	14-1
Auto cancel	0	0
Auto switching to 1-position stapling	1	0
Inhibit	0	1
Forced, 2 points	1	1

*29 : Operation when stapling cannot be done (small size (SW14–2 and 14–3)), and also when one staple is specified but there is no staple in the position concerned (SW14–4 and 14–5)

Mode	14-2/4	14-3/5
Auto cancel	0	0
Auto cancel	1	0
Inhibit	0	1
Forced 1-position stapling mode operation	1	1

*30: Operation when stapling cannot be done (small size), and also when one staple is specified but there is no staple in the position concerned

Mode	14-6	14-7
Auto cancel	0	0
Auto cancel	1	0
Inhibit	0	1
Forced 2-position stapling mode operation	1	1

*31: Fixing temperature at low power mode

Mode	16-0	16-1
Idling (don't care)	0	0
122˚C	1	0
77˚C	0	1
Idling (don't care)	1	1

*32: F4 size setting

Mode	17-0	17-1	17-2
8.5 x 13	0	0	0
8.25 x 13	1	0	0
8.125 x 13	0	1	0
8 x 13	1	1	0
8.5 x 13.5	0	0	1

*33: Unit isolation

If a unit is malfunctioning and causing a problem, set the corresponding bit to isolate the unit from the system (software isolation). Copier operation can then continue without problem until the unit can be repaired, etc.

*34: SW2 (sub switch) turns ON with SW1 (main switch)

Setting this bit to "1" will increase the warm-up time.

Reason:

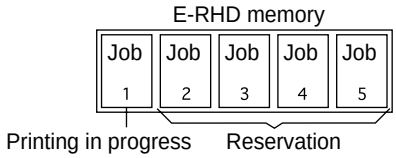
The CB (control board) houses both an engine-control CPU and a system-control CPU. Switching ON of the main power does not start the engine CPU, but does start the power supply to the system CPU. The system CPU is initialized, and then the OS is initialized, and then memory and other hardware checks are performed.

This initialization sequence takes about 6 seconds (until printer/scanner, and copy LEDs have gone ON/OFF). When this setting is "0", the engine does not start if SW2 is pressed during initialization.

*35: Search start tray setting for APS

Mode	23-0	23-1
Search from main body upper tray	0	0
Search from main body upper tray	1	0
Search from DB upper tray	0	1
Prohibited	1	1

*36: Process non-stop, and reserved job start timing setting



This machine can hold up to 5 print jobs in the E-RDH memory. When this setting is "1", and a reserved job (copy reservation or printer job) is generated during a print operation, the machine proceeds to the next job without stopping after the end of the ongoing print job.

When this setting is "0", the print operation stops after the end of the ongoing print job. However, if any of conditions 1 to 7 below exists, the print operation stops after the end of the ongoing print job, even if this setting is "1".

Conditions under which print operation stops

1. The ongoing print job (current job) and the next reserved job are of different kinds (reserved copy, fax, printer, interrupt copy).
2. The printer modes are different.

   The current job is a two-sided mode job and the next reserved job is a one-sided mode job.
3. There is no FNS, and the output mode of the current job (non-sort, sort, group) differs from the output mode of the next job.
4. When an FNS is installed, the output mode, stapling position (at front, rear and both), and paper exit tray (tray 1 to tray 4) of the current job and the next reserved job are different.
5. The application functions (booklet, intersheet, memory copy, page insertion, rotation sort) of the next reserved job are selected.
6. The special original settings (mixed original, Z-fold, non-standard) of the current job and the reserved job are different.
7. Currernt job is confirmation copy.

Also,occasionally paper feed is continuous.
Conditions:

1. Normal copy mode is used.
2. One-side copy mode is used.
3. Staple's position is the same.
4. Sort,Group,Non-sort are the same.
5. Output direction is the same.
6. Paper exit tray is the same.
7. The functions as below are not selected:Booklet, Memory copy, Imageinsert, Single stop, Interleave, Rotation sort, Rotaion group, Watermark, Stamp, Page, Date, Numberring, Overlay and Mixed APS.

*37: Image leading edge position adjustment

Mode	25-0/4	25-1/5	25-2/6	25-3/7
+0mm (No position adjustment)	0	0	0	0
+0.5mm	1	0	0	0
+3.5mm	1	1	1	0
–0.5mm	1	0	0	1
–3.5mm	1	1	1	1

*38 Printer job setting with key counter installed
When key counter is installed, both copy job and printer job are counted if the setting is "0" and printer job is done before or after copying. If the setting is "1" , only copy job is counted but printer job is not counted.

[3] Paper Size Setting

This function stores the paper size in the memory of the main body if it has been changed .

Paper size setting menu

- Destination setting
- AB size series
- Inch size series

Caution: The number of item keys displayed differs depending upon the installed DB.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the [2.Paper size] key.
3	**[Paper size screen]** Press the tray key to be changed.
4	Press the [▲] , [▼] key to select a paper size.
5	Press the [RETURN] key to return to the 25 mode menu screen.

Reference1: When the DB-208/208A or DB-608 is not installed, the trays of the DB section is not displayed.

Reference2: Availability of paper size depends on the selected tray. The unavailable paper sizes will be skipped and not displayed.

Reference3: New data on tray size will be written in non-volatile RAM every time it is changed in this screen.

The following table shows the paper sizes that can be used in the LCT (DB-608).

Japan	A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R
Europe	A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R
U.S.A.	8.5 x 11, 8.5 x 11R, A4, A4R

Caution1: The main body tray, all trays in the DB-208/208A, the upper tray of the DB-608 and the by-pass tray can not be adjusted in the Non-volatile RAM. These trays detect paper size via sensors.

Caution2: The size series of the universal tray can be selected as follows.
- Destination setting
- AB series
- Inch series

Caution3: The screen is automatically changed from the optional tray according to the type of trays.

[4] PM Count Setting

This function resets the PM count and sets the PM cycle. Care should be taken to reset the PM count properly.

PM count / cycle menu

1. PM count resetting
2. PM cycle setting

1. PM count reset

Select whether to reset the count in the PM count reset screen.

Step	Operation procedure
1	Enter the 25 Mode.
2	**[25 mode menu screen]** Press the 3. PM COUNT/CYCLE key.
3	**[PM Count / Cycle setting screen]** Press the 1. PM COUNT reset key.
4	**[PM Count rest screen]** Press the YES key to reset the PM count. Press the NO or RETURN key, then the PM count is not reset and returns to the PM count/ cycle setting screen.

2. Entering PM count start date

When resetting the PM count, it is necessary to input the start date, and the screen below will appear automatically.

Step	Operation procedure
1	**[PM Count Starting Date Input Screen]** Enter a PM count start date from the numeric keys.
2	Press the SET key to enter the data that has been entered.
3	Press the RETURN key to return to the PM count/cycle setting screen.

Caution: When pressing the RETURN key without pressing the SET key, the PM count start date is not changed. It is necessary to reset the count again for inputting the count.

3. Setting of PM cycle

Set PM Cycle as follows:

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 3. PM COUNT/CYCLE key.
3	**[PM Count / Cycle setting screen]** Press the 2. PM CYCLE Set key.
4	**[PM Cycle set screen]** Enter PM cycle from the numeric keys. Enter upper 3-digit (hundred thousand, ten thousand, thousand) only.
5	Press the SET key to enter a PM cycle that has been entered.
6	Press the RETURN key to return to the PM count/cycle setting screen.

[5] Collecting Data

This function enables viewing of the various data recorded in the machine.

Also, it is possible for the collected data to be checked by KRDS and management listing.

Collecting data menu

1. Count data collection
2. Area data collection start (Date count data)

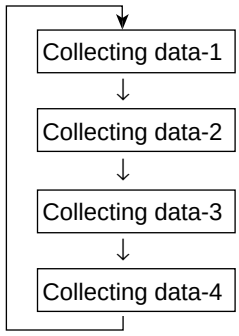
Collecting data list

Classification	Contents	Pre-peration
Collecting data 1	Count number of copies by each size	(Note 1)
	Count RADF original feed quantities	
Collecting data 2	Count of JAM occurrence by each point	• Enter the 25 mode ↓ • Select [1. Software SW] ↓ • Set the address to 8-7:1 (Note 2)
Collecting data 3	Count of copies by each mode	
Collecting data 4	Count of SC occurrence	

Note 1: Only collecting data 1 can be checked in default.

Note 2: For the setting method, see "[2] Setting software SW" in 25 mode.

1. Procedures for checking collected data

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 4. Collecting data key.
3	**[Collecting data screen]** Press the 1. Count data key.
4	**[Count data screen]** Change the data number with the ▲ or ▼ key.
5	Pressing NEXT key enables display of next data collection screen. (Note 3) 
6	Press the RETURN key to return to the data collection screen.

(1) The data is displayed at the line 2 in the message display area as “Data number (No.): Count value (00000000)”.

(2) The data number can be changed by pressing the ▲ or ▼ key.

(3) Press and hold the ▲ or ▼ key to display the next items continuously.

Note 3: In order to confirm collected data 2 to 4, set SW 8-7 to “1” beforehand.
(Refer to software switch setting 8-7 and *22.)

2. Collecting data details

(1) Collecting data-1

Type	Size No.	Paper size for destination		
		Japan	Europe	U.S.A.
Copy count by each size	01	A3	A3	11 x 17
	02	B4	B4	8.5 x 14
	03	A4 + A4R	A4 + A4R	8.5 x 11 + 8.5 x 11R
	04	B5 + B5R	B5 + B5R	5.5 x 8.5
	05	A5	A5	-
	06	B6	F4	-
	07	8.5 x 14	-	-
	08	8.5 x 11 + 8.5 x 11R	-	A4 + A4R
	09	AB series	AB series	Inch series
		Special	Special	Special
	10	Postcard	-	-
RADF original passage count	11	ADF mode original feed counter		
	12	RADF mode original feed counter		
	13	ADF mixed original mode original feed counter		
	14	RADF mixed original mode original feed counter		

Maximum count number : 99,999,999

(2) Collecting data-2

<Jam occurrence count by factor>

No.	Jam	Point
01	10-0	By-pass
02	-	-
03	12-0	Main body lower tray (main body)
04	13-0	DB upper tray
05	14-0	DB middle tray
06	15-0	DB lower tray
07	16-0	Paper feed jam
08	-	-
09	-	-
10	-	-
11	30-0	Conveyance jam
12	31-0	Conveyance jam
13	-	-
14	-	-
15	32-0	Fixing unit conveyance jam
16	33-0	Fixing unit conveyance jam
17	34-1	Reverse/Paper exit jam
18	34-2	Reverse/Paper exit jam
19	34-3	Reverse/Paper exit jam
20	34-4	Reverse/Paper exit jam
21	34-5	ADU conveyance jam
22	97-1	ADU conveyance jam
23	92-0	ADU conveyance jam
24	-	-
25	-	-
26	61-0	RADF
27	61-1	RADF
28	-	-
29	62-1	RADF
30	62-2	RADF
31	62-3	RADF
32	62-4	RADF
33	62-5	RADF
34	63-0	RADF
35	63-1	RADF
36	63-2	RADF
37	63-3	RADF
38	63-4	RADF

No.	Jam	Classification
39	63-5	RADF
40	63-6	RADF
41	63-7	RADF
42	72-10	FNS
43	72-11	FNS
44	72-12	FNS
45	72-13	FNS
46	72-14	FNS
47	72-15	FNS
48	72-16	FNS
49	72-21	FNS
50	72-22	FNS

Maximum count number : 999,999

(3) Collecting data-3

<Copy count by each mode>

No.	Contents
01	Platen single side → single side
02	-
03	RADF double side → single side
04	RADF double side → double side
05	RADF single side → single side
06	RADF single side → double side
07	FNS (Staple mode)
08	FNS (Sort mode)
09	FNS (Group mode)
10	FNS (No. of stapling)
11	Life size
12	Fixed ratio (E3: 1.41/2.00)
13	Fixed ratio (E2: 1.22/1.55)
14	Fixed ratio (E1: 1.15/1.29)
15	Fixed ratio (R1: 0.86/0.77)
16	Fixed ratio (R2: 0.82/0.65)
17	Fixed ratio (R3: 0.71/0.50)
18	Arbitrary magnification
19	Zoom
20	Maximum zoom
21	Minimum zoom
22	AMS mode
23	APS mode
24	AE mode
25	Interrupt mode
26	By-pass feed mode
27	Book copy mode
28	Frame erase mode
29	Fold erase mode
30	Image shift mode
31	Reduction image shift mode
32	Thick paper mode
33	Thin paper mode
34	No. of paper feed quantities at intersheet mode (blank paper interleave)
35	-
36	Number of feed in the OHP mode (blank paper interleave)
37	No. of paper feed quantities at mixed original mode
38	Access number of the JOB memory call mode (Number of pressing the P button)

No.	Contents
39	Number of times the auto low power mode is used
40	Number of copies with copy quantity set 1
41	Number of copies with copy quantity set between 2 to 5.
42	Number of copies with copy quantity set 6 to 10
43	Number of copies with copy quantity set is set to 11 or above.
44	Number of copies with Intersheet mode
45	-
46	Photo mode
47	-
48	Verti./Horiz. zoom mode
49	Memory copy mode
50	Single step mode
51	Text/Photo mode
52	Text mode
53	Arbitrary density mode
54	Passage quantity with OHP sheet (Transparency copy interleave)
55	Intersheet mode & thick paper copy mode
56	-
57	Page insertion mode
58	Chapter division mode
59	2 in 1, 4 in 1, 8 in 1 mode
60	Repeat mode
61	B/W reverse mode
62	Non-image area erase mode
63	Increase contrast mode
64	Original auto layout copy
65	Face up output copy
66	Alternating output copy
67	-
68	Copy quantity of paper feed from tray 1
69	Copy quantity of paper feed from tray 2
70	Copy quantity of paper feed from tray 3
71	Copy quantity of paper feed from tray 4
72	-
73	FNS, Number of stapling (front)
74	FNS, Number of stapling (rear)
75	Copy quantity of booklet copy mode
76	-
77	Z-fold mode copying count
78	Copy quantity in the non-standard size mode
79	Stamping mode copying count
80	Image head correction mode copying count
81	Overlay mode copy quantity

Maximum count : 99,999,999

(4) Data collection 4

Count number of SC occurrence (F Code)

No.	Error code (decimal number)		Classification
	Main code	Sub code	
01	F10	1	Communication abnormality
02	F10	2	
03	F10	3	
04	-	-	Paper feed abnormality
05	F18	2	
06	F18	3	
07	F18	4	
08	F18	5	
09	F26	1	High-voltage power source abnormality
10	F28	1	
11	F28	2	
12	F28	3	
13	F34	1	Fixing high-temperature abnormality
14	F34	2	
15	F34	3	
16	F34	4	
17	F35	1	Fixing low-temperature abnormality
18	F35	2	
19	F36	1	Fixing sensor abnormality
20	F36	2	
21	F40	1	Optics system abnormality
22	F41	1	
23	F46	1	Image processing system abnormality
24	F46	8	
25	F46	10	
26	F46	11	
27	F49	2	
28	F49	4	
29	F49	6	
30	F51	2	Motor speed abnormality
31	F51	3	
32	F51	4	
33	F51	5	
34	F52	6	
35	F51	7	
36	F52	1	Fan lock abnormality
37	F52	2	
38	F52	3	
39	F52	4	
40	E56	1	Image control communication abnormality (error in communication between overall control and image control)
41	E56	2	
42	E56	3	
43	E56	4	
44	E56	5	

No.	Error code (decimal number)		Classification
	Main code	Sub code	
45	E56	6	Operation control section system abnormality
46	E56	7	
47	E56	8	
48	E56	9	
49	E56	10	
50	F60	1	RADF abnormality
51	F67	1	
52	F67	2	
53	F67	3	
54	F70	1	FNS abnormality
55	F77	1	
56	F77	2	
57	F77	3	
58	F77	4	
59	F77	5	
60	F77	6	
61	F77	7	
62	F77	8	
63	F77	9	
64	F77	10	
65	F77	21	
66	F77	22	
67	F77	30	
68	F80	1	Non-volatile memory abnormality
69	F80	2	
70	F80	3	
71	F80	4	
72	F80	5	
73	F81	1	Flash ROM abnormality
74	F81	2	
75	E88	1	Image processing system abnormality
76	E89	1	Control board communication abnormality
77	E89	2	
78	E89	3	
79	E89	4	
80	E89	5	
81	E89	6	
82	F56	11	Model identification abnormality
83	F87	2	Print controller abnormality
84	F52	5	Fan lock abnormality
85	-	-	-
86	-	-	-
87	-	-	-
86	-	-	-
89	-	-	
90	-	-	
91	-	-	
92	-	-	
93	-	-	-
94	-	-	
95	F52	6	Fan lock abnormality
96	F81	3	Flash ROM abnormality
97	F60	11	RADF abnormality
98	F67	4	
99	F70	11	FNS abnormality
100	F87	3	Printer board HDD abnormality

Maximum count : 9,999

3. Starting periodic date collection

Reset the periodic data from the setting periodic collection start date. Make a date that this operation is performed as a new periodic collection start date. The periodic data can be checked with the KRDS and management list.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 4. Collecting data key.
3	**[Collecting data screen]** Press the 2. Date count data key.
4	**[Date count data screen]** Press the YES key to start the periodic data collection. Press the NO or RETURN key, then data collection start date is not reset and returns to the collecting data screen.

[6] Parts Counter

Perform the copy count display, count clear, limit value setting and arbitrarily parts to be replaced setting to the data of the parts to be replaced (fixed/arbitrarily).

Each count value can be check with the management list of 36 Mode and the KRDS.

Parts counter menu

1. Copy Count for each fixed replacement part
2. Copy Count for each arbitrarily replacement part

1. Copy count display and count reset by parts to be replaced (fixed)

Set the parts name of the fixed parts to be replaced (fixed), parts No. and copy count display, and count reset.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [5. Parts counter] key.
3	**[Parts counter set screen]** Press the [1. Count of parts (Fixed)] key.
4	**[Count of parts (Fixed) screen]** Press [▲], [▼] keys to select the data.
5	Press the [Count reset] key.
6	**[Count of parts (Fixed) screen]** Press the [YES] key to clear the copy count. Press the [NO] or [RETURN] key, then the copy count is not reset and returns to the parts counter set screen by parts to be replaced.

<List of parts to be replaced (fixed)>

No.	Unit	Parts name
01	DC	Cleaning blade
02	(including electrode)	Charging wire
03		Charging control plate
04		Cleaning mounting base
05		Charging cleaning block C
06		Charging cleaning block D
07		Transfer and separation corona wire
08		Photosensitive drum
09		Drum separation claw
10	Developing unit	Developer
11	Tray 1 (Main body)	Tray 1:Separation rubber
12		Tray 1:Paper feed rubber
13		Tray 1:Double feed prevention rubber
14	DB upper tray	Tray 2:Separation rubber
15		Tray 2:Paper feed rubber
16		Tray 2:Double feed prevention rubber
17	DB middle tray	Tray 3:Separation rubber
18	or LCT tray	Tray 3:Paper feed rubber
19		Tray 3:Double feed prevention rubber
20	DB lower tray	Tray 4:Separation rubber
21		Tray 4:Paper feed rubber
22		Tray 4:Double feed prevention rubber
23	By-pass feed unit	Separation rubber
24		Paper feed rubber
25		Double feed prevention rubber
26	Fixing unit	Fixing cleaning roller
27		Fixing roller A
28		Fixing cleaning pad
29		Fixing roller, upper
30		Fixing claw, upper
31		Heat insulating sleeve
32		Fixing roller, lower
33		Fixing claw, lower
34		Fixing roller bearing, upper
35		Bearing
36		Fixing roller bearing
37		Fixing heater 1
38		Fixing heater 2
39		Fixing filter
40		Ozone filter
41	RADF	Pickup roller
42		Forward rotation roller
43		Separation pad
44		Pick-up clutch ass'y
45		Cleaning ass'y
46	FNS	FNS-T2 exit roller/A
47		FNS-T3 exit roller/A
48		Front stapler
49		Rear stapler

2. Copy count display and count reset by parts to be replaced (Named; arbitrarily)

Set the limit value for the parts to be replaced, parts No., parts name setting, copy count display and count reset.

Step	Operation procedure
1	Enter the 25 Mode.
2	**[25 mode menu screen]** Press the 5. Parts counter key.
3	**[Parts counter set screen]** Press the 2. Count of parts (Named) key.
4	**[Count of parts (Named) screen]** Press the ▲ or ▼ key to select the data to be set or changed.
5	The following items can be set below: Count reset : To clear the copy count. Limit set : To enter the limit value (6-digit). P/N set : To enter the parts number (9-digit). Parts name : To enter the parts name.
6	Press the RETURN or OK key, then return to parts counter set screen by parts to be replaced.

<List of parts to be replaced (arbitrarily)>

No.	Count timing
01	When copy count (at the paper exit is completed)
02	When copy count (at the paper exit is completed)
03	When copy count (at the paper exit is completed)
04	When copy count (at the paper exit is completed)
05	When copy count (at the paper exit is completed)
06	When copy count (at the paper exit is completed)
07	When copy count (at the paper exit is completed)
08	When copy count (at the paper exit is completed)
09	When copy count (at the paper exit is completed)
10	When copy count (at the paper exit is completed)
11	When copy count (at the paper exit is completed)
12	When copy count (at the paper exit is completed)
13	When copy count (at the paper exit is completed)
14	When copy count (at the paper exit is completed)
15	When copy count (at the paper exit is completed)
16	When copy count (at the paper exit is completed)
17	When copy count (at the paper exit is completed)
18	When copy count (at the paper exit is completed)
19	When copy count (at the paper exit is completed)
20	When copy count (at the paper exit is completed)
21	When paper is fed from by-pass tray (Bypass paper feed)
22	When paper is fed from tray 1 (Tray 1)
23	When paper is fed from tray 2 (Tray 2)
24	When paper is fed from tray 3 (Tray 3)
25	When paper is fed from tray 4 (Tray 4)
26	When paper is fed from ADU (ADU)
27	When paper is exited from main body (Main body exit)
28	When original is fed into RADF (ADF)
29	When original is fed into RADF (ADF)
30	When original is fed into RADF (ADF)

(1) Count resetting method

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [5. Parts counter] key.
3	**[Parts counter set screen]** Press the [2. Count of parts (Named)] key.
4	**[Count of parts (Named) screen]** Press the [▲] or [▼] to select the data.
5	Press the [Count reset] key.
6	**[Count of parts (Named) screen]** When you press the [YES] key, the copy count is cleared, and the count of parts (Named) screen re-appears. Press the [NO] or [RETURN] key, then the copy count is not reset and returns to the copy count screen by parts counter set.

(2) Count limit setting method

Enter the new limit value from the numeric keys on the screen.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [5. Parts counter] key.
3	**[Parts counter menu screen]** Press the [2. Count of parts (Named)] key.
4	**[Count of parts (Named) screen]** Press the [▲] or [▼] to select the data to be set or changed.
5	Press the [Limit set] key.
6	**[Limit of each part setting screen]** Enter new value using the numeric keys.
7	Press the [SET] key to enter the limit value that has been entered.
8	Press the [RETURN] key to return to the count of parts (Named) screen.

Caution: When pressing the [RETURN] key without pressing the [SET] key, the setting is complete without changing a new limit value and returns to the count of parts (Named) screen.

Reference: The right side of the limit value will be marked "*" if the copy count exceeds its limit value.

(3) Parts No. setting

Enter the new parts No. (8-digit) from the numeric keys and alphabet keys on the screen.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [5. Parts counter] key.
3	**[Parts counter set screen]** Press the [2. Count of parts (Named)] key.
4	**[Count of parts (Named) screen]** Press the [▲] or [▼] to select the data to be set or changed.
5	Press the [P/N set] key.
6	**[Set part No. screen]** Enter new parts No. using the numeric and alphabet keys.
7	Press the [SET] key to enter the parts No. that has been entered.
8	Press the [RETURN] key to return to the count of parts (Named) screen.

Caution: When pressing the [RETURN] key without pressing the [SET] key, the setting is complete without changing a new parts No. and returns to the count of parts (Named) screen.

(4) Parts name setting

Enter the new parts name from the keys on the screen.

There are three screen in the input screen and are changed with the [▼] or [▲] key:

- Alphabet (a capital letter), numeric number
- Alphabet (a small letter), numeric number
- Symbol, numeric number

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [5. Parts counter] key.
3	**[Parts counter set screen]** Press the [2. Count of parts (Named)] key.
4	**[Count of parts (Named) screen]** Press the [▲] or [▼] to select the data to be set or changed.
5	Press the [Parts name] key.
6	**[Name Input screen]** Enter new parts name using the keys on the screen.
7	Press the [OK] key to finalize the entered part name. When you press this key, the copy count screen for the designated replacement part re-appears.
8	Press the [CANCEL] key to return to the count of parts (Named) screen.

Caution: If you press the [CANCEL] key without pressing the [OK] key, the set date remains unchanged and the 25 mode menu screen re-appears.

[7] Password Setting

This function sets the password to enter each mode.

In the 25 mode menu screen, select the [6. Password setting], then the password setting menu screen will appear.

Select the password to be adjusted/entered in this screen.

Password setting menu

1. Key operator password set
2. E.K.C. master key code set
3. Weekly timer master key set

1. Setting key operator password

This function sets the password to enter the key operator mode.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 6. Password setting key.
3	**[Password setting screen]** Press the 1. Key operator password set key.
4	**[Key Operator Password Set Screen]** Enter 4-digit new password from the numeric keys.
5	Press the SET key to set the password that has been entered.
6	Press the RETURN key to return to the password setting screen.

Caution: When pressing the RETURN key without pressing the SET key, the setting is complete. However the new password will not be entered and the password setting menu screen will return.

Reference: When setting a password to “0000”, the key operator mode can be used without a password.

2. Setting of EKC master key code

Set the EKC master key code when entering the EKC setting mode of the key operator mode.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 6. Password setting
3	**[Password setting screen]** Press the 2. E.K.C. master key code set key.
4	**[EKC master key code set screen]** Enter 8-digit new EKC master key code using the numeric keys.
5	Press the SET key to enter the EKC master key code that has been entered.
6	Press the RETURN key to return to the password setting screen.

Caution: When pressing the RETURN key without pressing the SET key, the setting is complete without changing a new EKC master key code and returns to the password setting screen.

Reference: When “00000000” is set as the password, the EKC setting menu screen will be displayed instead of the password entry screen.

3. Setting the weekly timer master key

This function sets the weekly timer master key required for entering the various weekly timer set mode.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 6. Password setting key.
3	**[Password setting screen]** Press the 3. Weekly timer master key set key.
4	**[Weekly timer master key set screen]** Enter 4-digit new weekly timer master key using the numeric keys.
5	Press the SET key to enter the weekly timer master key that has been entered.
6	Press the RETURN key to return to the password setting screen.

Caution: When pressing the RETURN key without pressing the SET key, the setting is complete without changing a new weekly timer master key and returns to the password setting screen.

Reference: When setting the master key to “0000”, the weekly timer mode can be used without a password.

[8] Setting Phone Number of the Service Center

This function displays the telephone and fax numbers of the service center which is indicated on the screen if a service call is required.

This function is not related to KRDS functions. It is designed only for indicating the data on the screen.

1. Setting phone and fax number of the service center

Select [7. Service TEL No.] in the 25 mode screen.

Service center number setting screen will appear.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 7. Service TEL No. key.
3	**[Service TEL No. screen]** Press the TEL key to set the phone number and the FAX key to set the FAX number, and input the number (Max. 21 digits) using the numeric keys on the screen.
4	When input has been mistaken, rewrite it after moving the cursor with << or >> key, or delete all with the Stop/clear button to input again.
5	Press the SET key to enter the number that has been entered.
6	Press the RETURN key to return to the 25 mode menu screen.

Caution: When pressing the RETURN key without pressing the SET key, the setting is complete. However the new phone number will not be entered and the 25 mode menu screen will return.

[9] Setting the Serial Number

This function is used to display, set and change the serial number of the main body and optional units.

The serial numbers can be read from KRDS.

1. Serial number display procedure

Select [8. Serial number] in the 25 mode screen. The serial number setting screen will appear.

The item name and serial number are displayed on the serial number setting screen. Each serial number is displayed at the right side of each unit.

You can set the destination of the machine by pressing the DESTINATION key.

Press the RETURN key to end setting and return to the 25 mode menu screen.

2. Setting and changing serial number

On the serial number setting screen, select the desired item, then each serial number setting screen will appear.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 8. Serial number key.
3	**[Serial number screen]** Press the key corresponding to the desired item on the screen.
4	**[Serial number screen]** Enter the 9-digit serial number from the alphabet and numeric keys on the screen and then press the SET key to enter the number that has been entered.
5	Press the RETURN key to return to the serial number setting menu screen.
6	When changing the serial number of other item, repeat steps 3 to 5.
7	Press the RETURN key to return to the 25 mode menu screen.

Note: When pressing the RETURN key without pressing the SET key, the setting is complete. However the new serial number will not be entered and the serial number setting screen will return.

3. Changing the destination setting

To change the destination setting, press the DESTINATION key on the serial-number setup menu. The procedure is as follows.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 8. Serial No. key.
3	**[Serial No. screen]** Press the DESTINATION key.
4	**[Destination set screen]** Use the ▲ or ▼ key to select the destination.
5	Press the OK key to register the setting and to return to the serial number setting screen.(Note)

Note: If you press CANCEL key, the copier will retain the previous destination setting and return you to the serial number setting screen.

<Destination codes>

Code	Destination	Code	Destination
JP	Japan	TW	Taiwan
US	U.S.A.	EU	Europe
KR	South Korea	CN	China

[10] Displaying the ROM Version

Display ROM version mounted to the machine.

1. ROM version viewing method

In the 25 mode menu screen, select [9. ROM version], then the ROM version display screen will appear.

The item name and ROM version are displayed on the ROM version display screen. Each serial number is displayed at the right side of each item.

When there is no option not installed, the applicable position is a blank.

ROM version display

1. System control
2. Image control
3. Panel
4. Optical control
5. RADF
6. Finisher
7. Option tary

When the optional printer are installed, its ROM versions will also be displayed.
Press the RETURN key to end this screen and return to the 25 mode screen.

[11] KRDS Setting

Refer to the chapter “KRDS.”

[12] ISW Setting

Refer to the chapter “ISW.”

[13] Root Counter Display

The root counter (total counter) can be checked in 25 mode on the root counter display.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 12. Root counter.
3	**[Root counter screen]** Values of the root counter (total counter) are displayed.
4	Press the RETURN key to return to the 25 mode screen.

[14] Setting Date

Set the total count start day.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 13.Setting date key.
3	**[Setting date screen]** Using the numeric keys, enter the year, month and day in that sequence
4	Press the OK key to return to the 25 mode screen.

Caution: If you press the CANCEL key without pressing the OK key, the set date remains unchanged and the 25 mode menu screen re-appears.

36 MODE

<List of adjustment items for 36 mode>

No.	Menu	No.	Sub menu	Circular menu	Summary of operation
1	High voltage adjustment	—	None	Charging voltage adjustment	**Adjustment in the field is inhibited.**
				Transfer current adjustment	
				Separation (AC) voltage adjustment	
				Separation (DC) current adjustment	
				Charging grid voltage adjustment	
				Developing bias adjustment	
				Dmax correction	
				L detection adjustment	Performs L detection adjustment for the developer, and registers the result in the nonvolatile memory. Display the L detection adjustment value as the result when it is completed. Reset the developing counter.
				Automatic toner supply	**Adjustment in the field is inhibited.**
2	Timing adjustment	1	Drum clock adjustment	Printer vertical magnification (drum clock) adjustment	After making an adjustment, print the SGU pattern (No.16).
				Platen vertical magnification (drum clock) adjustment	After making an adjustment, make a copy.
				Platen horizontal magnification adjustment	
				RADF (50%) vertical magnification (drum clock) adjustment	The same as 36 mode 8 RADF Adjustment.
				RADF (100%) vertical magnification (drum clock) adjustment	
				RADF (200%) vertical magnification (drum clock) adjustment	
				RADF (400%) vertical magnification (drum clock) adjustment	
		2	Restart timing adjustment	Restart timing adjustment (All)	After making an adjustment, print the SGU pattern (No.16).
				Restart timing adjustment (Main body)	
				Restart timing adjustment (DB upper tray)	
				Restart timing adjustment (DB middle tray)	
				Restart timing adjustment (DB lower tray)	
				Restart timing adjustment (By-pass)	
				Restart timing adjustment (ADU)	

No.	Menu	No.	Sub menu	Circular menu	Summary of operation
2	Timing adjustment	2	Restart timing adjustment	Restart timing adjustment (RADF face side)	The same as 36 mode 8 RADF Adjustment.
				Restart timing adjustment (RADF back side)	
		3	Paper loop adjustment	Paper feed loop amount adjustment (All)	After making an adjustment, print the SGU pattern (No.16).
				Paper feed loop amount adjustment (ADU, small size)	
				Paper feed loop amount adjustment (ADU large size)	
				Paper feed loop amount adjustment (Main body tray, small size)	
				Paper feed loop amount adjustment (Main body tray, large size)	
				Paper feed loop amount adjustment (DB)	
				Paper feed loop amount adjustment (By-pass, ordinary paper)	
				Paper feed loop amount adjustment (By-pass, thick paper)	
				Paper feed loop amount adjustment (ADU)	
				Paper feed loop amount adjustment (FCOT)	
				Paper feed loop amount adjustment (RADF face side)	The same as 36 mode 8 RADF Adjustment.
				Paper feed loop amount adjustment (RADF back side)	
		4	Lead edge adjustment	None	After making an adjustment, make a copy.
		5	Centering adjustment	Centering adjustment (All)	After making an adjustment , print the SGU pattern (No.16).
				Centering adjustment (Main body tray)	
				Centering adjustment (DB/upper)	
				Centering adjustment (DB/middle)	
				Centering adjustment (DB/lower)	
				Centering adjustment (By-pass)	

No.	Menu	No.	Sub menu	Circular menu	Summary of operation
2	Timing adjustment	5	Centering adjustment	Centering adjustment (ADU, common)	Print the SGU patters (No.16) after making an adjustment.
				Centering adjustment (ADU, L)	
				Centering adjustment (ADU, M)	
				Centering adjustment (ADU, S)	
				Centering adjustment (ADU, SS)	
				Centering adjustment (Platen)	
				Centering adjustment (RADF face side)	The same as 36 mode 8 RADF Adjustment.
				Centering adjustment (RADF back side)	
		6	Image read point adjustment	Planten adjustment	After making an adjustment, make a copy.
		7	Restoring standard data	Drum clock adjustment	Reset the adjustment data in the same condition as they were when the machine left the factory.
				Restart timing adjustment	
				Paper loop adjustment	
				Lead edge timing adjustment	
				Centering adjustment	
				Read point adjustment	
3	Running mode	1	Intermittent copy mode	None	After making a selection, carry out operation.
		2	Paperless intermittent copy mode		
		3	Paperless mode		
		4	Paperless endless mode		
		5	Running mode		
		6	Cartridge set mode		
4	Test pattern print	—	None	None	Print the SGU pattern according to the specification No.
5	Density adjustment	—	Test pattern density adjustment	None	After making an adjustment, print the specified SGU pattern.
6	Image quality adjustment	1	PWM gamma correction (Patch method)	Dmax correction	Perform the Dmax correction and register the result the in the non-vola-tile memory. Displays the result and DmaxLED/sleeve rotation value at Dmax correction completion.
				SGU pattern print	Output the specified SGU pattern from the basic screen.
				Gamma correction	Read the output SGU pattern using the scanner, then calculate the PWM gamma correction value and display the result.
				Gamma curve preparation	Create the gamma curve with the Start print button ON.
		2	RADF scanner density adjustment	None	Make a density adjustment by letting the machine read white chart.
		3	Non-original erasure installation survey	None	Check with RADF opened completely

No.	Menu	No.	Sub menu	Circular menu	Summary of operation
7	List print	1	Test pattern	None	Grid pattern with 2 dots in width of line and 500 dots at intervals of lines.
		2	Font pattern	None	Built-in font pattern (Those for Japan include kanji characters.)
		3	Memory dump list	None	Print dump of data stored from the specified address in Hex and ASCII formats.
		4	Management list	None	Print the condition of the machine, counter data information, and jam history.
		5	Adjustment list	None	Print only 25/36 mode adjustment value from the machine management list.
		6	Log list (1)	None	Print dump of data stored from the specified address in Hex and ASCII formats.
		7	Log list (2)		
8	RADF adjustment	1	Drum clock adjustment	Vertical magnification adjustment of RADF (50%)	After making an adjustment, make a copy.
				Vertical magnification adjustment of RADF (100%)	
				Vertical magnification adjustment of RADF (200%)	
				Vertical magnification adjustment of RADF (400%)	
		2	Restart timing adjustment	RADF (face side)	After making an adjustment, make a copy.
				RADF (back side)	
		3	Paper loop adjustment	RADF (face side)	After making an adjustment, make a copy.
				RADF (back side)	
		4	Centering adjustment	RADF (face side)	After making an adjustment, make a copy.
				RADF (back side)	
		5	RADF scanner density adjustment	None	Make an adjustment of density by letting the machine read white chart.

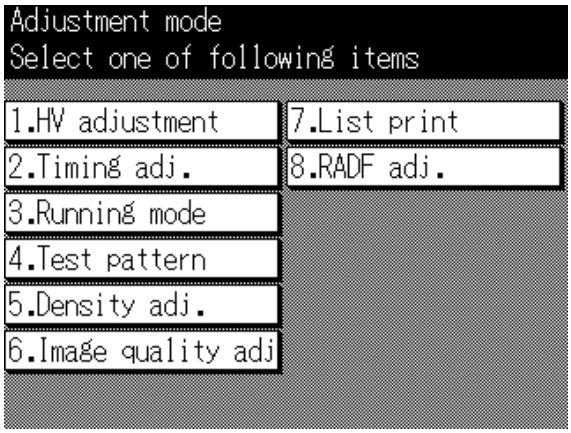
[1] Setting Method

A special operating mode called "36 Mode" has been provided with this machine. This mode enables adjustment of the various parts.

1. Turn the SW2 (sub power) OFF when the SW1 (main power) remains ON.
2. Turn the SW2 (sub power) ON while pressing 3 and 6 of the numeric keys.

   36 mode menu screen will appear on the LCD. At this time, normal copy operation is not possible.

[36 mode menu screen]



3. Press the desired item key on the LCD screen. Each setting screen will appear.
4. Enter data in each setting screen.
5. Press the RETURN key to check the data that have been entered.
6. If necessary, change the other settings. After the main body is restarted, the new settings will be activated.

[2] High Voltage Adjustment

1. Charging voltage value adjustment

Charging voltage value adjustment is inhibited in the field.

2. Transfer current adjustment

Transfer current adjustment is inhibited in the field.

3. Separation (AC) voltage adjustment

Separation (AC) voltage adjustment is inhibited in the field.

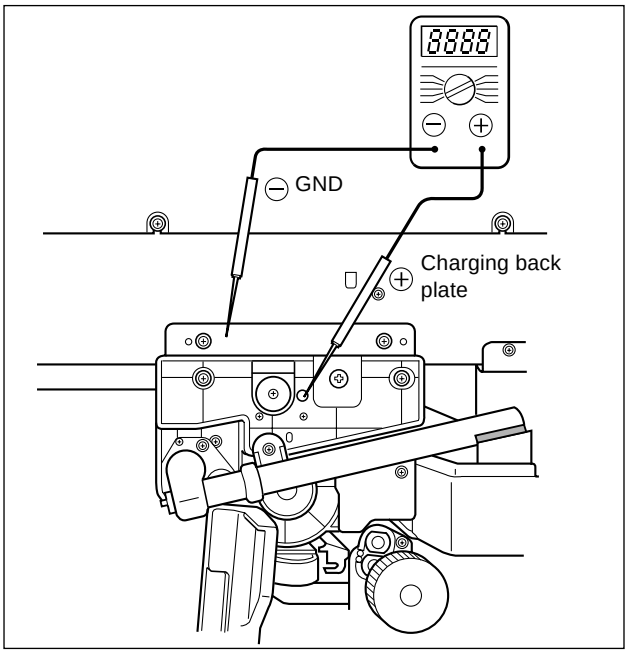
4. Separation (DC) voltage value adjustment

Separation (DC) voltage value adjustment is inhibited in the field.

5. Charging grid voltage adjustment

Perform this adjustment when the drum, charging control plate, high-voltage unit 1 or parameter memory board is replaced.
Refer to the "LIST OF ADJUSTMENT ITEMS" since there is a prioritization in the adjustment order.

Step	Operation procedure
1	Connect the tester as shown in illustration at right. +: Charging back plate –: GND (earth) Range: 1000 VDC or auto range
2	Fit the door switch jig to the interlock switch (MS1) for the front door, then enter the 36 mode.
3	**[36 mode menu screen]** Press the 1. HV adjustment key.
4	**[HV adjustment screen]** Press the NEXT key until "HV adj. (Grid voltage)" appeas in the message display area.
5	**[HV adj. (Grid voltage) screen]** Press the Start button and check the tester value. After checking, press the stop/clear button.
6	If the measurement value is different from the standard value, enter a value using the numeric keys on the screen, then press the SET key. Standard value: Drum designate value (Indicated on the flange) ± 5 V Input range : 0 (lower) ~ 255 (higher) 1 step = 1.6 V
7	Repeat steps 5 and 6 until the grid voltage becomes the standard value.
8	To adjust another adjustment, press the NEXT or BACK key to select the desired adjustment.
9	Press the RETURN key to return to the 36 mode menu screen.



6. Developing bias adjustment

Developing bias adjustment is inhibited in the field.

7. High voltage adjustment: Dmax correction

Do not perform Dmax correction in the field.

8. L detection adjustment

This adjustment be made immediately after replacement of the developer (before any copies are made with the new developer). Developing counter is automatically reset.

Caution: After replacing the developer, do not make copies until you have performed L detection adjustment.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 1. HV adjustment key.
3	**[HV adjustment screen]** Press the NEXT key until the "L detection adj." appears in the message display area.
4	**[HV adj --- (L detection adj.) screen]** Press the START key, then confirm that "OK" is displayed at RESULT and the L detection data value.
5	To make another adjustment, press the NEXT or BACK to select the desired adjustment.
6	Press the RETURN to return to the 36 mode menu screen.

Caution: If an OK indication does not appear after the developer has been agitated, it means that an L detection adjustment error has occurred. In this case, an error code will appear in the "Result" display area. For the meaning of error codes, refer to the "L detection error code list" of "List of warning (error) codes".

9. Automatic toner supply

Normally, toner supply take place automatically so there is no need to carry out these operations in the field.

[3] Timing Adjustment

This function adjusts each timing.
When timing adjustment is performed, use A3 or 11 x 17 size paper.

(1) Select [2. Timing adj.] in the 36 mode menu screen. The timing adjustment menu screen will appear.
Timing adjustment menu
1. Vertical/horizontal magnification adjustment
2. Restart timing adjustment
3. Paper feed loop amount adjustment
4. Leading edge original erasure amount adjustment
5. Centering adjustment
6. Image read point adjustment
7. Restoring standard data

(2) Press the item key to be adjusted. The selected setting screen will appear.

1. Vertical/Horizontal magnification adjustment

Adjust the vertical/horizontal magnification at the zoom mode.

(1) Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear. Select the [1. Drum clock adj.] on this screen, then the Drum clock adjustment (magnification adjustment) screen will appear.
This adjustment has the following items. These can be selected by pressing the NEXT or BACK key:
- Vertical magnification drum clock adjustment --- Printer
- Vertical magnification drum clock adjustment --- Platen
- Horizontal magnification adjustment --- Platen
- Vertical magnification adjustment--- RADF (50%)
- Vertical magnification adjustment --- RADF (100%)
- Vertical magnification adjustment --- RADF (200%)
- Vertical magnification adjustment --- RADF (400%)

(2) Enter data from the numeric keys on the screen, then press the SET key to enter the data that have been entered.

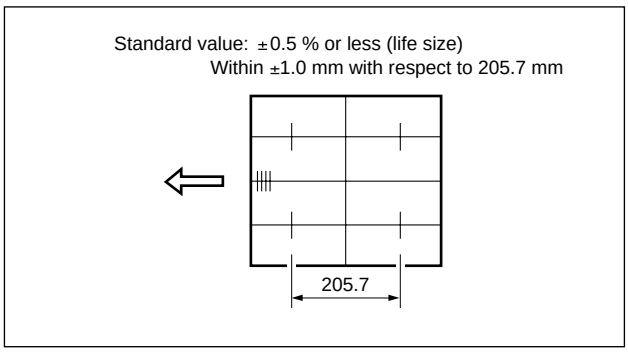
(3) Press the COPY key to return to the basic screen, then make a test copy.

(4) While pressing the P button, press the C button to return to the magnification adjustment screen.

(5) If the output (test copy image) is different from the standard value, enter setting value using the numeric keys and make a test copy.
If the output (test copy image) is within the standard value, adjust the next adjustment item.

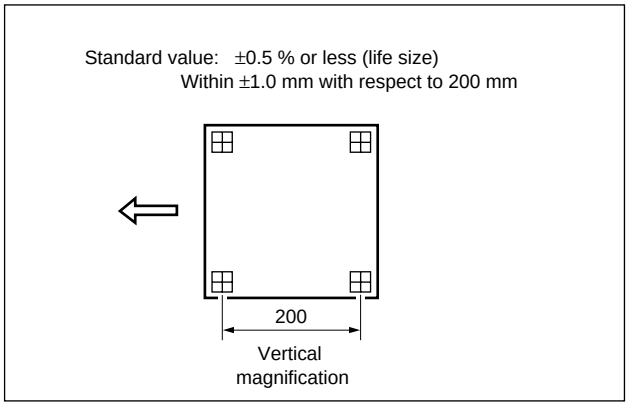
a. Printer system vertical magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 1. Drum clock adj. key.
4	**[Drum clock adj. screen]** Press the NEXT key until “Drum clock adj. (Printer)” appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select A3 or 11 x 17 size paper, then press the start button to print the SGU pattern.
7	Measure the vertical magnification of the output paper. Standard value: ±0.5 % or less (life size) Within ±1 mm with respect to 205.7 mm
8	Press the C button while pressing the P button to return to the "Drum clock adj" screen.
9	**[Drum clock adj. screen]** If the vertical magnification is different from the standard value, enter a value from the numeric keys, then press the key to store the adjustment value. SET Input range: –50 (reduction) to +50 (enlargement) 1 step = 0.05 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.



b. Platen vertical magnification adjustment

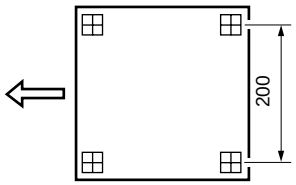
Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 1. Drum clock adj. key.
4	**[Drum clock adj. screen]** Press the NEXT key until “Drum clock adj. (platen)” appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper. Then press the start button to make a copy.
7	Measure the vertical magnification of the output paper. Standard value: ±0.5 % or less (life size) Within ±1 mm with respect to 200 mm
8	Press the C button while pressing the P button to return to the "Drum clock adj" screen.
9	**[Drum clock adj. screen]** If the vertical magnification is different from the standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –20 (reduction) to +20 (enlargement) 1 step = 0.05 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.



c. Platen horizontal magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 1. Drum clock adj. key.
4	**[Drum clock adj. screen]** Press the NEXT key until “Horizontal adj. (platen)” appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper. Then press the start button to make a copy.
7	Measure the vertical magnification of the output paper. Standard value: ± 0.5 % or less (life size) Within ± 1 mm with respect to 200 mm
8	Press the C button while pressing the P button to return to the "Drum clock adj" screen.
9	**[Drum clock adj. screen]** If the vertical magnification is different from the standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –10 (reduction) to +10 (enlargement) 1 step = 0.1 %
10	Repeat steps 5 to 9 until the horizontal magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

Standard value: ±0.5 % or less (life size)
Within ±1.0 mm with respect to 200 mm

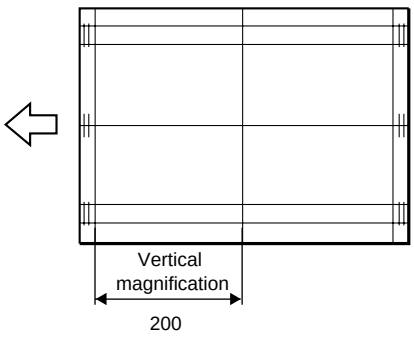


Caution: The result of the platen horizontal magnification will be reflected all the images read by scanner (RADF, platen).

d. RADF vertical magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 1. Drum clock adj. key.
4	**[Drum clock adj. screen]** Press the NEXT key until "RADF" appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the start button to make a copy.
7	Measure the vertical magnification of the output paper. Standard value: ± 0.1 % or less (life size) Within ± 2.0 mm with respect to 200 mm
8	Press the C button while pressing the P button to return to the "Drum clock adj" screen.
9	**[Drum clock adj. screen]** If the vertical magnification is different from the standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –20 (reduction) to +20 (enlargement) 1 step = 0.1 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

Standard value: ±0.1 % or less (life size)
Within ±2 mm with respect to 200 mm



1. Restart timing adjustment

To adjust the restart timing.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment screen will appear.

Select the [2. Restart timing] on this screen, then the restart timing adjustment screen will appear.

This adjustment has the following kinds of items. These can be selected by pressing the NEXT or BACK key:

- Restart timing adjustment --- All
- Restart timing adjustment --- Engine (Main body tray)
- Restart timing adjustment --- Engine (DB/upper)
- Restart timing adjustment --- Engine (DB/middle)
- Restart timing adjustment --- Engine (DB/lower) (when DB-208 is installed)
- Restart timing adjustment --- Engine (By-pass)
- Restart timing adjustment --- Engine (ADU)
- Restart timing adjustment --- RADF (face side)
- Restart timing adjustment --- RADF (back side)

a. Engine restart timing adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 2. Restart timing key.
4	**[Restart timing adj. screen]** Press the NEXT key until the desired adjustment item appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select A3 or 11 x 17 size paper and press the start button to print the SGU pattern.
7	Check the restart timing of the output paper. Standard value: ± 2.0 mm
8	Press the C button while pressing the P button to return to the restart timing adj screen.
9	**[Restart timing adj. screen]** If the restart timing is different from the standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –127 (slower) to +127 (faster) 1 step = 0.1mm
10	Repeat steps 5 to 9 until the restart timing becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

b. RADF restart timing adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 2. Restart timing key.
4	**[Restart timing adj. screen]** Press the NEXT key until the desired RADF adjustment item appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the start button to make a copy.
7	Check the restart timing of the output paper. Standard value: Within ± 3.0 mm (life size)
8	Press the C button while pressing the P button to return to the restart timing adj screen.
9	**[Restart timing adj. screen]** If the restart timing is different from the standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –50 (slower) to +50 (faster) 1 step = 0.1mm
10	Repeat steps 5 to 9 until the restart timing becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

3. Paper feed loop amount adjustment

If a paper is skewed, adjust the amount of the loop for each tray.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [3. Paper loop adj.] on this screen, then the paper feed loop amount adjustment screen will appear.

This adjustment has the following kinds of items. These can be selected by pressing the NEXT or BACK key.

- Paper feed loop adjustment (All)
- Paper feed loop adjustment (ADU (small size)) (Note 1)
- Paper feed loop adjustment (ADU (large size)) (Note 2)
- Paper feed loop adjustment (Main body tray (small size)) (Note 3)
- Paper feed loop adjustment (Main body tray (large size)) (Note 4)
- Paper feed loop adjustment (DB)
- Paper feed loop adjustment (By-pass (ordinary paper))
- Paper feed loop adjustment (By-pass (thick paper))
- Paper feed loop adjustment (ADU)
- Paper feed loop adjustment (FCOT) (Note 5)
- Paper feed loop adjustment (RADF) (face side)
- Paper feed loop adjustment (RADF) (back side)

Note 1: B5 only
Note 2: Other than B5
Note 3: Other than F4R, A3, B4, 8.5x14, 11x17
Note 4: F4R, A3, B4, 8.5x14, 11x17
Note 5: Only the first of the A4/8.5x11 size copies exited from tray 1 at the manual density and 1:1 magnification settings

a. Paper feed loop adjustment for engine

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 3. Paper loop adj. key.
4	**[Paper loop adj. screen]** Press the NEXT key until the desired adjustment item appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select A3 or 11 x 17 size paper, then press the start button to print the SGU pattern.
7	Check the skewing condition.
8	Press the C button while pressing the P button to return to the paper loop adj screen.
9	**[Paper loop adj. screen]** If the paper feed loop amount is not correct, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –127 (small) to 00 (standard) to +127 (large) 1 step = 0.21mm
10	Repeat steps 5 to 9 until the paper feed loop amount becomes appropriate.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

b. Paper feed loop adjustment for RADF

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 3. Paper loop adj. key.
4	**[Paper loop adj. screen]** Press the NEXT key until "RADF" appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper, then press the start button to make a test copy.
7	Check the condition of skewing in the output copy.
8	Press the C button while pressing the P button to return to the paper loop adj screen.
9	**[Paper loop adj. screen]** If the paper feed loop amount is not correct, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –10 (small) to 00 (standard) to +10 (large) 1 step = 0.5mm
10	Repeat steps 5 to 9 until the skewing condition is correct.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

4. Leading edge original erasure adjustment

Adjust the leading edge original erasure (leading edge blank cut) amount.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [4. Lead edge timing] on this screen, then the leading edge original erasure amount adjustment screen will appear.

Caution: If you reduce the erasure width, a black line may appear on the leading edge of the paper when you make an enlarged copy.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 4. Leading edge timing key.
4	**[Lead edge timing adj. screen]** Press the COPY key.
5	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper, then press the start button to make a test copy.
6	Measure the leading edge original erasure amount of the output paper. Standard value: Within 3.0 mm
7	Press the C button while pressing the P button to return to the lead edge timing adj screen.
8	**[Lead edge timing adj. screen]** If the leading edge original erasure amount is not correct, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –20 (small) to +20 (large) 1 step = 0.1mm
9	Repeat steps 4 to 8 until the leading edge original erasure amount becomes the standard value.
10	Press the RETURN key to return to the timing adj. screen.

5. Centering adjustment

Adjust the miscentering for paper feed direction.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [5. Centering adj.] on this screen, then the centering adjustment screen will appear.

This adjustment has the following kinds of items. These can be selected by pressing the NEXT or BACK key.

- Centering adjustment (All)
- Centering adjustment (Main body tray)
- Centering adjustment (DB/upper)
- Centering adjustment (DB/middle)
- Centering adjustment (DB/lower) (when DB-208 is installed)
- Centering adjustment (By-pass)
- Centering adjustment (ADU, common)
- Centering adjustment (ADU, L)
- Centering adjustment (ADU, M)
- Centering adjustment (ADU, S)
- Centering adjustment (ADU, SS)
- Centering adjustment (Platen)
- Centering adjustment (RADF face side)
- Centering adjustment (RADF back side)

Caution 1: ADU centering adjustment can be taking place for each paper size.

L: A3, B4, 11 x 17, 11 x 14, F4

M: A4R, B5R, 8.5 x 11R

S: A4, B5, 8.5 x 11

SS: A5R, 5.5 x 8.5R

Caution 2: ADU centering adjustment for each paper is the offset adjustment from the ADU (common).

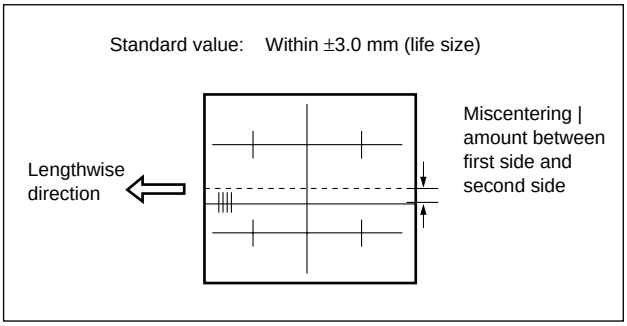
a. Each tray centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 5. Centring adj. key.
4	**[Centring adj. screen]** Press the NEXT key until the desired tray appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set A3 or 11 x 17 size paper in the tray to be adjusted and select this tray. Then press the start print button to print the SGU pattern .
7	Fold the output (SGU pattern) at the center in the paper feed direction, and check that the left and right lines overlap completely. Standard value: Within ±2 mm
8	Press the C button while pressing the P button to return to the centring adj screen.
9	**[Centring adj. screen]** If the miscentering is more than standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –31 (inward direction of the center line) to +31 (rear direction of the center line) 1 step = 0.13mm
10	Repeat steps 5 to 9 until the miscentering is within standard value. (Note)
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

Note: If it can not be adjusted within the specified range, refer to "OTHER ADJUSTMENTS".

b. ADU centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 5. Centring adj. key.
4	**[Centring adj. screen]** Press the NEXT key until "ADU" appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select copy mode to single side - double side mode, then press the start button to print the SGU pattern.
7	Fold the output (SGU pattern) at the center in the paper feed direction, and check that the left and right lines overlap completely. Standard value: Face side: Within ±3 mm Back side: Within ±3 mm
8	Press the C button while pressing the P button to return to the centring adj screen.
9	**[Centring adj. screen]** If the miscentering is more than standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –31 (inward direction of the center line) to +31 (rear direction of the center line) 1 step = 0.13mm
10	Repeat steps 5 to 9 until the miscentering is within standard value for each paper size.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.



c. Platen centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 5. Centring adj. key.
4	**[Centring adj. screen]** Press the NEXT key until "Platen" appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper, then press the start button to make a test copy.
7	Check the miscentering by comparing the original with the copy. Standard value: Within ±2 mm
8	Press the C button while pressing the P button to return to the centring adj screen.
9	**[Centring adj. screen]** If the miscentering is more than standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –74 (inward direction of the center line) to +74 (rear direction of the center line) 1 step = 0.04mm
10	Repeat steps 5 to 9 until the miscentering is within standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

d. RADF centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 5. Centring adj. key.
4	**[Centring adj. screen]** Press the NEXT key until "RADF" appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper, then press the start button to make a copy.
7	Check the miscentering by comparing the original with the copy. Standard value: Within ±3 mm
8	Press the C button while pressing the P button to return to the centring adj screen.
9	**[Centring adj. screen]** If the miscentering is more than standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –74 (inward direction of the center line) to +74 (rear direction of the center line) 1 step = 0.04mm
10	Repeat steps 5 to 9 until the miscentering is within standard value for each adjustment.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the RETURN key to return to the timing adj. screen.

6. Image read point adjustment

Adjust the image read point.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment screen will appear.

Select the [6. Read point adj.] on this screen, then the read point adjustment screen will appear.

Caution: If you shift this value by a large amount, the RADF read density may change.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 6. Read point adj. key.
4	**[Read point adj. screen]** Press the COPY key.
5	**[Basic screen]** Set the new pyramid chart on the platen glass and select A3 or 11 x 17 size paper, then press the start button to make a test copy.
6	Make a comparison between original image and test copy image. Then check the image read point. Standard value: Less 1.0 mm
7	Press the C button while pressing the P button to return to the read point adj screen.
8	**[Read point adj. screen]** If the image read point is different from the standard value, enter a value from the numeric keys, then press the SET key to store the adjustment value. Input range: –20 (small) to +20 (large) 1 step = 0.1mm
9	Repeat steps 5 to 8 until the image read point is within standard value.
10	Press the RETURN key to return to the timing adj. screen.

7. Rest standard data

Reset the adjusted set values of timing adjustment to the standard values (factory default data).

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [7. Factory default] on this screen, then the resetting standard data screen will appear.

This adjustment can reset the following item adjusted set values to the standard values (factory default data). These can be selected by pressing the NEXT or BACK key.

- magnification drum clock adjustment
- Restart timing adjustment
- Paper feed loop amount adjustment
- Leading edge original erasure adjustment
- Centering adjustment
- Original read point adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2. Timing adj. key.
3	**[Timing adj. screen]** Press the 7. Factory default. key.
4	**[Data recovery screen]** Press the NEXT key until the desired item appears in the message display area.
5	Press the YES key to return the adjustment items to the standard values. When you press this key, the timing adjustment screen re-appears. Press NO or RETURN key, then the set values are not reset and return to timing adjscreen.
6	To reset another adjustment item, repeat steps 4 to 5.
7	Press the RETURN key to return to the timing adj. screen.

[4] Running Test Mode

Print out the various internal test pattern.

Select the [3. Running mode] in the 36 mode menu screen, then the running test mode menu screen will appear.

The following items can be selected:

1. Running mode 1 (Intermittent copy mode)

Running mode 1 is an intermittent copy mode. In this mode, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec., then starts the same operation again.

2. Running mode 2 (Paperless intermittent copy mode)

Running mode 2 is a paperless intermittent copy mode. It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection. Also, like running mode 1, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec., then starts the same operation again.

3. Running mode 3 (Paperless mode)

Running mode 3 is a paperless mode. It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam dection.

4. Running mode 4 (Paperless/endless mode)

Running mode 4 is a paperless/endless mode. It automatically sets the copy quantity to infinity. Also, like running mode 3, it makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection.

5. Running mode 5

Running mode 5 is process running mode. It consists of running mode 4 plus an operation consisting of an optics each-time scan and an automatic paper feed tray change.

6. Cartridge set mode

Use this mode if black spots appear on the copy after you replace the drum unit.

a. When one of mode keys 1 to 5 is selected

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 3. Running mode key.
3	**[Running mode screen]** Press the key according to the desired running mode. (Mode 1 to Mode 5)
4	**[Basic screen]** Press the start print button.
5	After checking the copy operation, press the stop/clear button to stop copy operation.
6	Press the C button while pressing the P button to return to the running mode screen.
7	To perform another running test mode, repeat steps 3 to 6.
8	Press the RETURN key to return to 36 mode menu screen.

b. When mode key 6 is selected

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 3. Running mode key.
3	**[Running mode screen]** Press the 6. Cartridge set mode key.
4	**[Cartridge set screen]** Press the START key .
5	The developing unit and the drum rotate for 4 minutes (Note), then 10 copies are automatically made, and the cartridge installation mode screen re-appears.
6	Repeat steps 4 and 5 until black spots no longer appear on the copy.
7	Press the RETURN key to return to running mode screen.
8	Press the RETURN key to return to 36 mode menu screen.

Note: The developing sleeve and drum rotation period can be set to either 2 minutes or 4 minutes using 25 mode SW22-5.

[5] Test Pattern Output

Print out the various internal test pattern.

Select the [4. Test pattern] in the 36 mode menu screen, then the test pattern output screen will appear.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 4. Test pattern key.
3	**[Test pattern screen]** Enter a pattern number to be output from numeric key, and pass the SET key.
4	Press the COPY key.
5	**[Basic screen]** Press the start button to output a test pattern.
6	Press the C button while pressing the P button to return to the test pattern output screen.
7	To output a different test pattern, repeat steps 3 to 6.
8	Press the RETURN key to return to 36 mode menu screen.

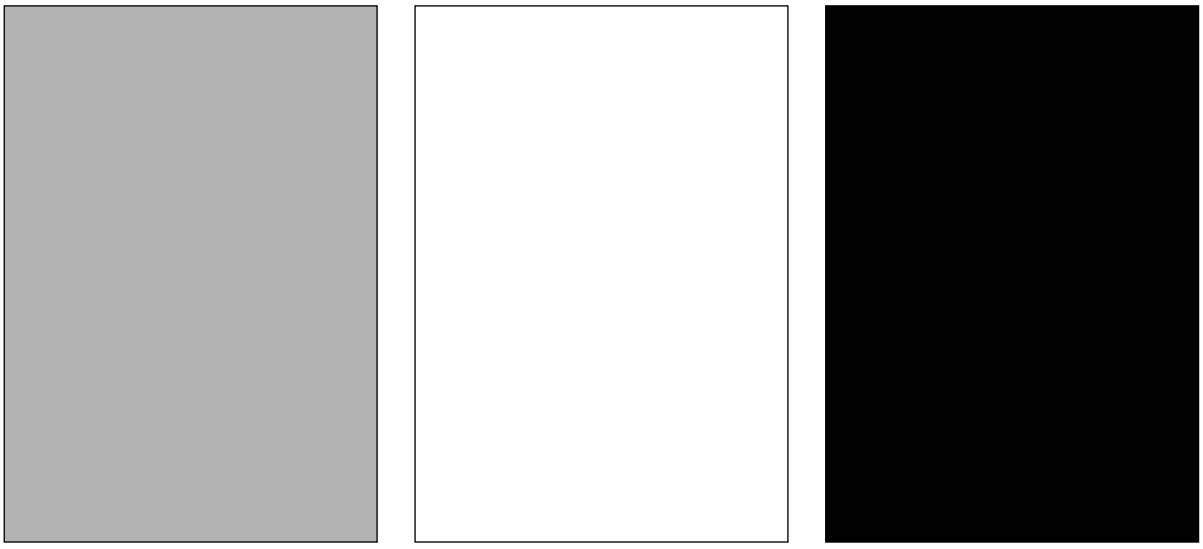
No. 1	Overall halftone

[Check Items]

- When the density is set to 70 (halftone)
  If white stripes, black stripes, or uneven density can be seen, locate abnormality in either scanner system or printer system.
- When the density is set to 0 (white)
  If the test pattern is fogged, locate abnormality in either scanner system or printer system.
- When the density is set to 255 (black)
  If the density is light, locate abnormality in either scanner system or printer system.

* For information about setting the density, refer to “[6] Test pattern density adjustment” below.

Test Pattern

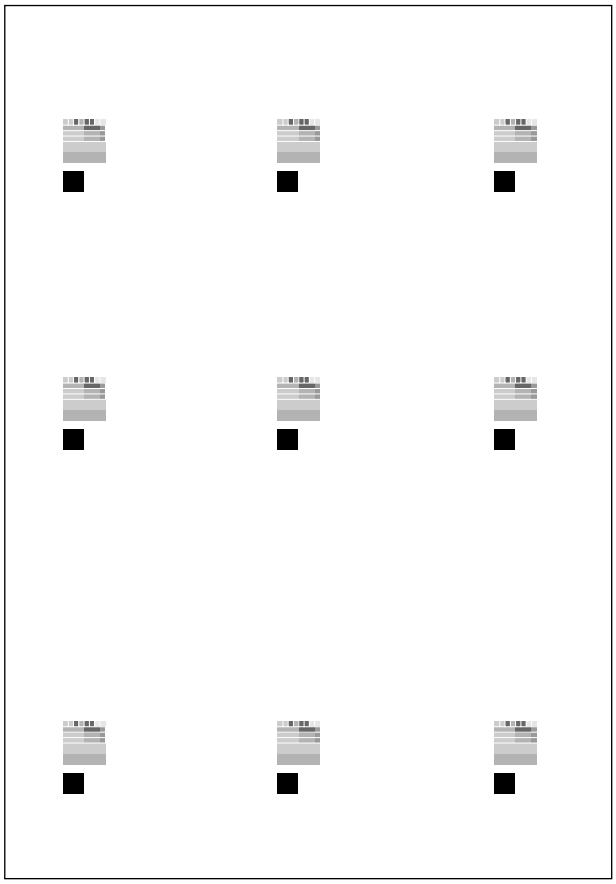


No. 11	Beam misalignment check

[Check Items]

Check the writing system abnormality (condition of resolution, reproducibility of independence point and so on).

Test Pattern

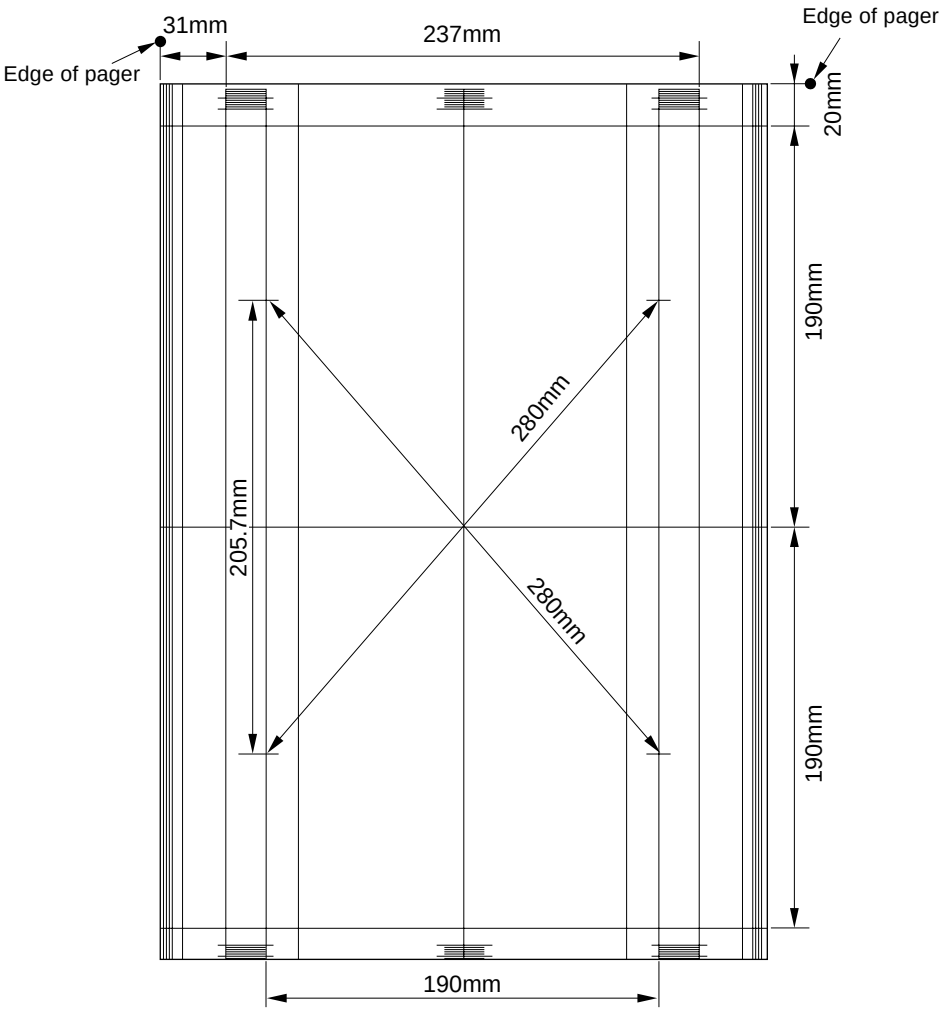


No. 16	Linearity evaluation pattern

[Check Items]

Judge from this test pattern which of the scanner system and the printer system is abnormal. Items that can be checked include horizontal magnification, vartical magnification, tilt image, and leading edge timing of the printer system. If the copy image is defective despite no abnormality being visible on the test pattern, the scanner system is defective.

Test Pattern



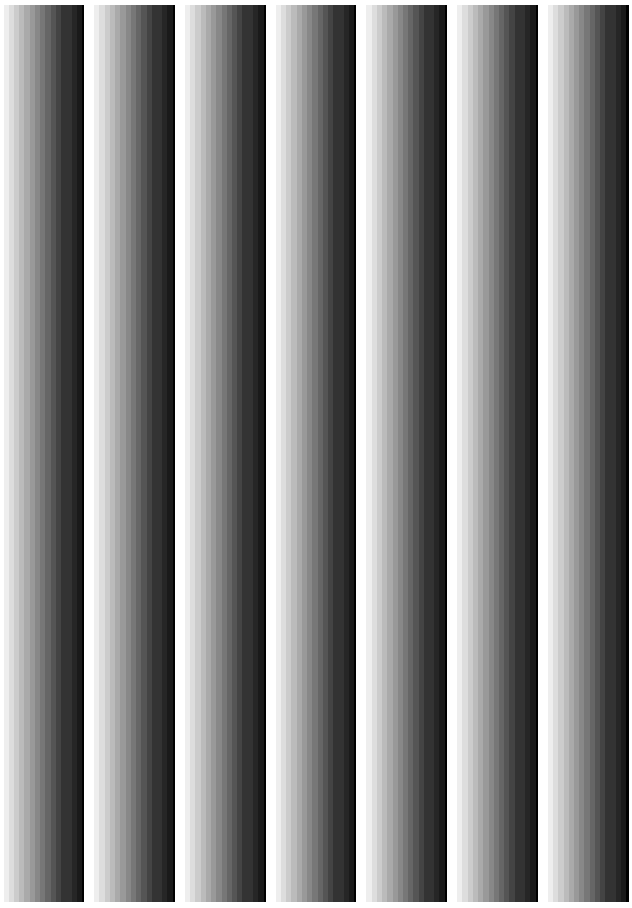
No. 80	SGU GA built - in pattern

[Check Items]

If there is an abnormality in the test pattern, it means that there is an abnormality in either the ICB (image control board) or the write system.

Reference: This test pattern is output as 8 bits.

Test Pattern



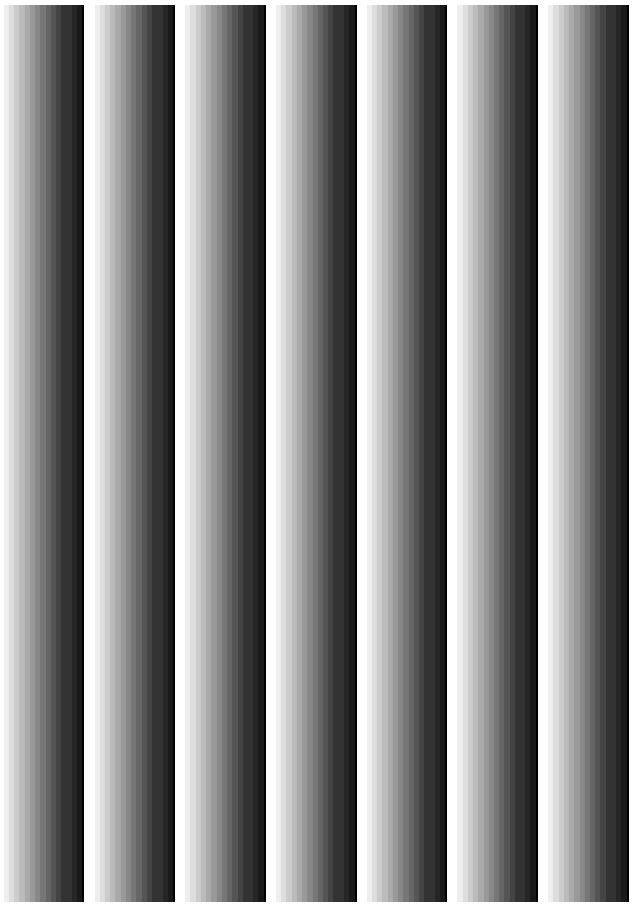
No. 81	Copy γ GA built - in pattern

[Check Items]

If No.80 SGU GA built-in pattern is normal and No.81 copy γ GA built-in pattern is abnormal, it means that there is an abnormality in either the CB (control board) or the ICB (image control board).

Reference: This test pattern is output as 8 bits.

Test Pattern



No. 84	Read GA built - in pattern

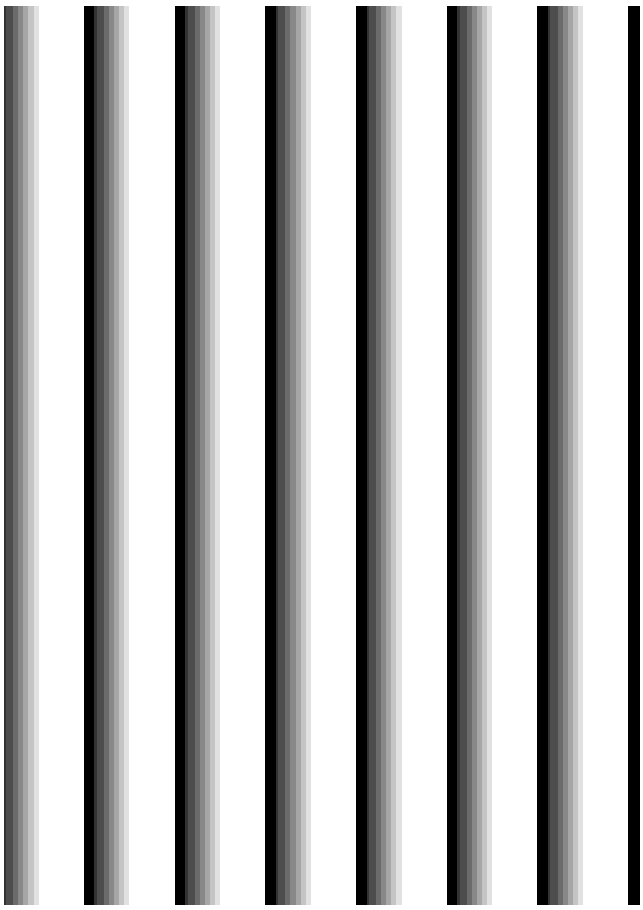
[Check Items]

If No.80 SGU GA built-in pattern and No.81 copy γ GA built-in pattern are normal but No.84 read GA built-in pattern is abnormal, it means that there is an abnormality in the ICB (image control board).

If there is an image abnormality despite the fact that No.80, 81 and 84 are normal, it means that there is an abnormality in either the CCD sensor board or the CB (control board).

Reference: This test pattern is output as 8 bits.

Test Pattern



[6] Density Adjustment

Density of respective patterns is adjusted in the following procedure.

Select the [5. Density adj.] in the 36 mode menu screen, then the print density adjustment screen will appear.

Density adjustment menu

1. Print density adjustment

1. Test pattern density adjustment

Adjustment of the density of the test pattern.

Select the [5. Density Adj.] in the 36 mode menu screen, then the print density adjustment screen will appear.

Select the [1. Print density adj. (1)] in the print density adjustment screen, then the print density adjustment screen will appear.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 5. Density adj. key.
3	**[Density adj. screen]** Press the 1. Print density adj. (1) Key.
4	**[Print density adj. (1) screen]** Press the key according to the desired test pattern to be adjusted.
5	Enter a desired density by a numeric value from the numeric keys, then press the SET key. Input range : 000 (light) to +255 (dark).
6	Press the COPY key.
7	**[Basic screen]** Press the start button to output a test pattern.
8	Check the density of the output test pattern.
9	Press the C button while pressing the P button to return to the density adj screen.
10	To adjust another test pattern, repeat steps 4 to 9.
11	Press the RETURN key to return to density adj screen.

[7] Image Quality Adjustment

This function adjusts the image quality adjustment.

(1) Select the [6. Image quality adj.] in the 36 mode menu screen, then the image quality adjustment screen will appear.

Image quality adjustment menu

1. PWM gamma (Patch)
2. RADF scanner density adjustment
3. Non-image area erase check

(2) Press the key according to the item to be adjusted. The selected adjustment screen will appear.

(3) Specity value to adjust on the adjustment screen.

(4) To end the adjustment, press the RETURN key to the density adjustment screen.

1. Patch method PWM gamma correction

Preform PWM gamma correction (Dmax sensor correction) by reading SGU test pattern. (Note1,2)
Perform the following four adjustment items in the order a, b, c and d.

a. Dmax (Dmax correction)

Setting the darkest density.

b. SGU (SGU pattern print)

Output a SGU pattern (No.50, No.51) to use with the gamma correction.

c. Gamma correction

Read the output pattern by the scanner of the copier with the “b. SGU pattern print” and calculate the correction value from the PWM value when pattern has been output and read pattern density.

d. Gamma curve preparation

Based on the correction value obtained in the gamma correction and the patch read level, calculate the correction value of the Dmax sensor and create the gamma curve.

Note1: If this calibration is not completed correctly, the density reproducibility of the printer (IP-431) may deteriorate.

Note2: When performing this operation, close the side plate at the side of the main body and the rear cover.

a. Dmax correction

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 6.Image quality adj key.
3	**[Image quality adjustment screen]** Press the 1.PMW gamma (Patch) key.
4	**[PWM gamme (Patch) screen]** Press the NEXT or BACK key until "PWM gamma (Patch)-Dmax" will appear in the message display area.
5	Press the START n confirm that the "OK" is displayed in [RESULT] indication area. (Note3)
6	Preform "b. SGU pattern print" next. Press the NEXT or BACK key until "PWM gamma (Patch)-SGU" will appear in the message display area.
7	To end the adjustment, press the RETURN key.

Note3: Preform next adjustment,after displaying the "OK" in result display area.

b. SGU pattern print

Output test patterns No.50 and No.51.

Step	Operation procedure
1	After [a. Dmax correction] (last adjustment item) is completed correctly, then press the NEXT or BACK key until "PWM gamma (Patch)-SGU" will appear in the message display area.
2	**[SGU test pattern print screen]** Press the No.50 key.
3	Press the COPY key. (Note1)
4	**[Basic Screen]** Select A3 or 11x17 size paper, then press the Start print button. (Note2) Test pattern No.50 is outputted.
5	Press the C button while pressing the P button to return to the SGU test pattern print screen.
6	Repeat steps 2 to 4 to output the Test pattern No.51. (In step 2, press the No.51 key)
7	Preform "c. gamma correction" next. Press the NEXT or BACK key until "PWM gamma (Patch)-Gamma correction" will appear in the message display area.
8	To end the adjustment, press the RETURN key.

Note1: The START key can not be pressed on this screen.

Note2: Use the fine paper as a copy paper.If using the recycled paper such as yellow or colored paper,the correction may not be performed correctly.

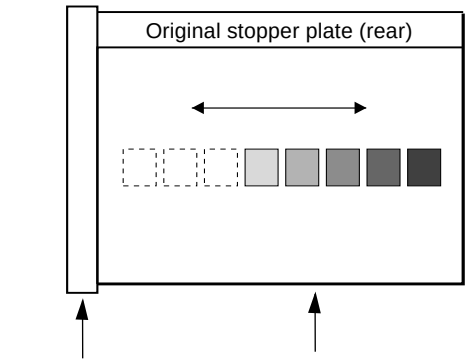
c. Gamma correction

Read the two test patterns that outputted in "b. SGU pattern print" by scanner.

Step	Operation procedure
1	After [b. SGU pattern print] (last adjustment item) is completed correctly, then press the NEXT or BACK key until "PWM gamma (Patch)-Gamma correction" will appear in the message display area.
2	**[SGU test pattern print screen]** Press the No.50 key.
3	Set the test pattern No.50 that outputted in SGU pattern print on the original glass. (Note3, 4)
4	Press the START key to read the test pattern No.50 with the scanner. (Note5)
5	Replace the original with No.51 that outputted in SGU pattern print and repeat step 3 and 4. (Press No.51 key at step 2.) (Note3) When step 4 of No.51 is finished, the correction data is started to calculate, the normal completion or error is displayed. When an error has occurred, perform from a again.
6	Preform "d. gamma curve preparation" next. Press the NEXT or BACK key until "PWM gamma (Patch)-Gamma curve" will appear in the message display area.
7	To end the adjustment, press the RETURN key.

Note3: Read No.51 (darker) after No.50 (lighter) reading. Be careful of the reading order.

Note4: Set direction of SGU pattern.



View from the rear of the original.

Place the original so that its print side points downward as usual.

⇑ Be sure to place the SGU test pattern with the light density side against the original stopper plate on the platen.

⇑ Be sure to close the RADF.

Note5: The COPY key can not be pressed on this screen.

d. Gamma curve preparation

Step	Operation procedure
1	After [c. gamma correction] (last adjustment item) is completed correctly, then press the NEXT or BACK key until "PWM gamma (Patch)-Gamma curve" will appear in the message display area.
2	Press the START key. Scanner reads the test pattern No.50.
3	When the gamma curve is prepared, "Completed" will appear in the message display area. Perform "a" to "d" again when an error is displayed. When the normal completion can not be made even if it is repeated several times, clean or replace the related parts.
4	Press the RETURN key to return to the image quality adj. menu screen.

Error Code Table for PWM Gamma Correction (patch method)

Classification	Error Code	Cause	Condition	Probable location of Abnormally
Dmax Correction	0001	Drum reflective light insufficient	Amount of reflective light from drum does not meet standard even after modifying Dmax sensor LED light amount.	· Dmax sensor cleaning · TCSB (Toner control sensor board) · PRDB (Printer drive board)
	0002	Developer performance insufficient	Patch density does not meet standard even when developer rotation is maximum	· Check for problems in patch prepare (between charging ~ developing).
	0003	Patch detection defective	Patch on drum cannot be detected	· Check to see whether drum coupling shaft is properly set. · Check for problems in patch preparation (between exposure ~ developing)
	0004	Drum reflective light excessive	Amount of reflective light from drum detected by Dmax sensor is too much.	· TCSB (Toner control sensor board) · PRDB (Printer drive board)
	0005	Dmax sensor output abnormality	Dmax sensor output can hardly be detected	· Check drum unit drawer connection. · TCSB (Toner control sensor board) · PRDB (Printer drive board)
Gamma Correction	0008	Data precision defective	Too many discrepancies in data for proofing by calculation the relationship of the value read by the Dmax sensor patch and the scanner patch density, and the precision of the calculation is defective.	· In a series of operations, errors may occur even when performing proper operations due to discrepancies in the values read by the machine, return to [a. Dmax correction] and repeat 2 ~ 3 times. · Check whether there were any problems with operation procedures, SGU pattern original setting direction, size, image or the like. · Check for abnormalities in SGU output, patch preparation (between charging ~ developer), TCSB (toner control sensor board), reader related items.
	0400	Insufficient data numbers read	Patch data numbers read by scanner is less than what is required in the above calculation.	
	0800	Insufficient gradation numbers read	Patch level numbers read by scanner is less than what is required in the above calculation.	
	1000	Dmax sensor detection value error	The density of the patch read by the Dmax sensor is almost the same for the lowest and highest density and so the above calculation could not be done.	· Check to see if the drum coupling shaft is properly set. · Check the drawer connection of the drum unit. · Check for problems in the TCSB (Toner control sensor board), patch preparation (between the exposure ~ developing).
Gamma Curve Prepare	0008	Data precision defective	The data for calculating the PWM correction curve from the value read by Dmax sensor patch has too many discrepancies and the precision of the calculation is defective.	· In a series of operations, errors may occur even when performing proper operations due to discrepancies in the values read by the machine, return to [a. Dmax correction] and repeat 2 ~ 3 times. · Check for abnormalities in SGU output, patch preparation (between charging ~ developer), TCSB (toner control sensor board), reader related items.
	0080	Dmax sensor detection value error	The Dmax sensor value was below the standard and so the PWM correction curve could not be calculated.	
	0100	Dmax sensor detection value error	The density of the patch read by the Dmax sensor is almost the same for the lowest and highest density and so the PWM correction curve could not be calculated.	
	0200	Dmax sensor proofing error	There was no difference between the lowest and highest density in the Dmax sensor ouput converted with the proofing value and so the PWM correction curve could not be calculated.	
	0800	Gamma curve error	The PWM correction curve prepared by calculation has a special attribute that does not allow it to be increased monotonously and so could not be used.	

Caution: The error code for Gamma correction and Gamma Curve preparation is displayed in a 4 digit hex value and when multiple errors occur, the results of the sum is displayed. (For example, when error codes 0400 and 0800 happen at the same time, 0C00.)

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2. RADF scanning density adjustment

When the original glass (1) is replaced, adjusts the density when reading the original with the RADF.
Before preforming this adjustment, be careful of the following items.

(1) The mechanical adjustment, optical adjustment and electrically adjustment of the scanner were completed.
(2) Clean the original glass (1).
(3) The white chart is not dirty or folded.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 6.Image Quality adj key.
3	**[Image quality adj. screen]** Press the 2.RADF Scan density adj. key.
4	**[RADF Scan density adj. screen]** Set the white chart on the RADF. (Note1)
5	Press the START key.
6	Check that the “Completed” will appear in the message display area.
7	If the “Error” will appear in the message display area, then repeat steps 4 and 5. (Note2)
8	Press the RETURN key to return to the print density adjustment screen.

Note1: Be sure to set the white chart orientation to the orientation of A4.
Note2: If “ERROR” is displayed repeatedly, there is a possibility in the adjustment of the scanner machine, optics, electric-related or parts defect

3. Non-original erasure installation survey

Carry out a survey of the installation environment after the machine is newly installed or moved to a different location.

Be careful of the following points when performing this adjustment.

⇑ Be sure that the RADF is fully open.

⇑ Do not place anything on the platen.

⇑ The platen glass must not be dirty.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 6. Image quality adj. key.
3	**[Image quality adj. screen]** Press the 3. Non-image Area Erase check key.
4	**[Non-image area erase check screen]** Press the START key.
5	Confirm that "Operation OK" appears on the message display. If "Operation NG" appears, carry out non-original erasure installation survey once again while referring to "Trouble and Remedy" below.
6	Press the RETURN key to return to the image quality adjustment screen.

<Trouble and Remedy>

Warning-1

Adjust for Extreme Brightness. In many cases, the Non -image-area-erase function will not operate correctly.
Please confirm "adjustment" - "36 mode" columns of the Service Hand book.

Remedy 1

If you use the non-original erasure function, or copy originals that have a dark background using the non-original erasure method, relatively infrequently, use the machine in its present installation environment.
If, however, you copy originals that have a dark background fairly frequently, re-install the machine in a dark location and facing a direction such that external light does not get into it, then carry out the

Warning-2

A datum with potentioal not to function non-image-area-erase is found.
Please confirm "adjustment" - "36 mode" colums of the Service Hand book.

Remedy 2

If you use the non-original erasure function relatively infrequently, you can use the machine in its present installation environment.
If, however, you copy originals that have a dark background fairly frequently, re-install the machine in a dark location and facing a direction such that external light does not get into it, then carry out the installation survey once again. In this case, if there is a bright light source, such as a fluorescent light, directly above the machine, reconsider the installation location and direction, or take steps to block off the light from the light source (by using a cover, for example), then carry out the installation survey once again.

[8] List print

Select the [7. List Print] from the 36 Mode Menu Screen to display the List Print Menu Screen.

You can select following menu options from this screen.

1. Test pattern.
2. Font pattern.
3. Memory dump list.
4. Management list.
5. Adjustment list.
6. Log List (1)
7. Log List (2)

Caution: Don't try to touch a mode not mentioned.

1. Test pattern

This option is used to output a grid pattern consisted of line width of 2 dots and line-to-line space of 500 dots. From this pattern, you can check the write system for normal performance.

2. Font pattern

This option outputs the font list built in the engine.

3. Memory dump list

This option is used to dump out data (in HEX and ASCII format) after the address specified in E-RDH memory (this list is referenced for troubleshooting). Normally not used.

4. Management list

This option outputs the machine status, counter information and history of jam and so on. (Page No.1 to 10)

5. Adjustment list

This option outputs a list of current adjusting values in the 25/36 mode. (Page No.1 to 4)

6. Log list (1)

The data from the memory is dumped in the HEX format and the ASCII format. (for analyzing trouble) Normally not used.

7. Log list (2)

The data from the memory is dumped in the HEX format and the ASCII format. (for anayzing trouble) Normally not used.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 7. List print key.
3	**[List print screen]** Press the key corresponding to the desired menu option.
4	**[List print screen]** When outputting the memory dump list, specify the start and end addresses (Note).
5	Press the Copy key.
6	**[Basic screen]** Press the start print button to output the list.
7	Press the C button while pressing the P button, then press the RETURN key. The list print screen will re-appear.
8	When outputting another list, repeat above steps 3 to 8.
9	Press the [RETURN] key to return to the 36 Mode Menu Screen.

Note: The memory dump list is dump output in both the HEX and ASCII format.

[9] Adjustment of RADF

Adjustments of RADF are performed in the following procedures. For the adjustment, A3 or 11 x 17 copy paper should be used.

(1) Select the [8. RADF adj.] from the 36 Mode Menu Screen to display the RADF adjustment menu.
RADF adjustment menu
1. Vertical magnification (Drum clock) adjustment.
2. Restart timing adjustment.
3. Paper loop adjustment.
4. Centering adjustment.
5. RADF scanning density adjustment.

(2) Press the key corresponding to the desired item. The screen corresponding to the selected item will appear.

(3) Using the NEXT and BACK keys, select the item to be adjusted. The selected item will be indicated in the message display area on the screen.

(4) Enter a desired value from the numeric keys on the screen, then press the SET key to validate your entry.

(5) Turn on the Basic Screen by pressing the COPY key, then make a test copy from the basic screen.

(6) Press the C button while depressing the P button to return to the desired adjustment screen.

(7) If the output does not conform to the standard, enter a desired value again from the numeric keys, then make a test copy. When the output satisfies the standard, proceed to adjustment of the next item.

(8) When the adjustment is complete, press the RETURN key to return to the RADF adj. screen.

1. Adjustment of vertical magnification (Drum clock)

(1) Select the [8. RADF adj.] from the 36 Mode Menu Screen to display the RADF Adjustment Menu. Select [1. Drum clock adj.] from this screen and the Magnification Screen will appear.
Using the NEXT and BACK will allow you to select the following items.
- RADF vertical magnification adjustment (50%).
- RADF vertical magnification adjustment (100%).
- RADF vertical magnification adjustment (200%).
- RADF vertical magnification adjustment (400%).

(2) Enter a desired value from the numeric keys on the screen, then press the SET key to validate your entry.

(3) Turn on the Basic Screen by pressing the COPY key, then make a test copy from the Basic Screen.

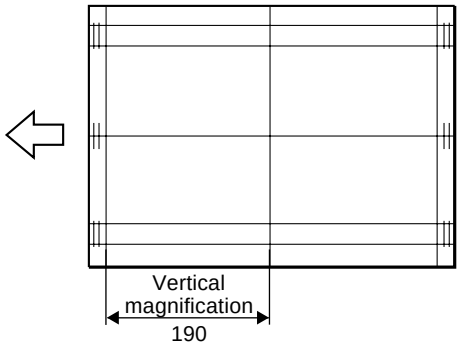
(4) Press the C button while depressing the P button to return to the magnification adjustment screen.

(5) If the output does not conform to the standard, enter a desired value again from the numeric keys, then make a test copy. When the output satisfies the standard, proceed to adjustment of the next item.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 8. RADF adj. key.
3	**[RADF adj. screen]** Press the 1. Drum clock adj key.
4	**[Drum clock adj. screen]** Press the NEXT key until the desired adjustment item appears.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on RADF, then select an A3 or 11 x 17 copy paper. Then press the start button to make a copy.
7	Measure vertical magnification of the output. Standard value: ±0.5% or less (Life size). within ±1.0 mm respect to 200 mm.
8	Press the C button while depressing the P button to return to the drum clock adj screen.
9	**[Drum clock adj. screen]** If the vertical magnification does not comply with the standard value, enter the value from the numeric keys, then press the SET key to validate your entry. Input range: –20 (reduce the magnification) to +20 (increase the magnification) 1 step = 0.1
10	Repeat above steps 5 to 9 until the vertical magnification meets the standard value.
11	You can proceed to adjustment of another item using the NEXT and BACK keys.
12	Press the RETURN key to return to the RADF adj screen.

Standard value: ±0.5% or less (Life size)

within ±1.0 mm respect to 200 mm



2. Adjustment of restart timing

Use the following procedure to adjust the RADF restart timing.

At the 36 mode menu screen, select [8. RADF adj.] to open the RADF adjustment menu. At the RADF adjustment menu, select [2. Restart timing]. This moves you to the screen you use to adjust the restart timing.

You can use the NEXT and BACK buttons to select the following adjustments.

- RADF (face side)
- RADF (back side)

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 8. RADF adj. key.
3	**[RADF adj. screen]** Press the 2. Restart Timing key.
4	**[Restart timing adj. screen]** Press the NEXT key until the desired adjustment item appears.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on RADF, then select an A3 or 11 x 17 copy paper. Then press the start button to make a copy.
7	Check the output for the restart timing. Standard value: ±3.0 mm or less (Life size).
8	Press the C button while depressing the P button to return to the restart timing adj screen.
9	**[Restart timing adj. screen]** When the restart timing does not comply with the standard value, enter the value from the numeric keys, then press the SET key to validate it. Input range: –50 (delays the timing) to +50 (advances the timing) 1 step = 0.1 mm
10	Repeat above steps 5 to 9 until the restart timing meets the standard value.
11	You can select another item for the adjustment from the NEXT and BACK keys.
12	Press the RETURN key to return to the RADF adj screen.

3. Paper feed loop adjustment

Adjustment of the RADF loop amount is done in the following procedures.

Select the [8. RADF adj.] from the 36 Mode Menu Screen to display the RADF Adjustment Menu Screen. Select the [3. Paper loop adj.] from this screen to display the paper feed loop adjustment screen.

Using the NEXT and BACK keys, you can select the following item from this screen.

- RADF (face side)
- RADF (back side)

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 9. RADF adj. key.
3	**[RADF adj. screen]** Press the 3. Paper Loop adj. key.
4	**[Paper loop adj. screen]** Press the NEXT key until the desired item appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on RADF, then select an A3 or 11 x 17 copy paper. Then press the start button to make a copy.
7	Check paper feed loop volume of the output.
8	Press the C button while depressing the P button to return to the paper loop adj screen.
9	**[Paper loop adj. screen]** If the paper feed loop amount is inappropriate, enter a desired value from the numeric keys, then press the SET key to validate it. Input range: –10 (decrease) through 00 (standard) up to +10 (increase) 1 step = 0.5 mm
10	Repeat above steps 5 to 9 until an appropriate paper feed loop volume is obtained.
11	You can proceed to adjustment of another item from the NEXT and BACK keys.
12	Press the RETURN key to return to the RADF adj screen.

4. Centering adjustment

Centering adjustment on RADF in feed direction is done in the following procedures.

Select the [8. RADF adj.] from the 36 Mode Menu Screen to display the Timing Adjustment Screen. Select the [4. Centring adj.] from this screen to display the centering adjustment screen.

You can select the following adjustment from the NEXT and BACK keys.

- RADF centering adjustment (face side).
- RADF centering adjustment (back side).

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 8. RADF adj. key.
3	**[RADF adj. screen]** Press the 4. Centring adj. key.
4	**[Centring adj. screen]** Press the NEXT key until the desired item appears in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on RADF, then select A3 or 11 x 17 for the copy paper. Then, press the start button to make copies.
7	Compare skew of the copy against that of the original. Standard value: ±3 mm less.
8	Press the C button while depressing the P button to return to the Centering Adjustment Screen.
9	**[Centring adj. screen]** If the skew volume does not conform to the standard value, enter a desired value from the numeric keys, then press the SET key to validate it. Input range: –74 (in the front side direction of the center line) through+74 (in the back side direction of the center line) 1 step = 0.06 mm
10	Repeat above steps 5 to 9 until the skew meets the standard value.
11	You can proceed to adjustment of another item from the NEXT and BACK keys.
12	Press the RETURN key to return to the RADF adj screen.

5. RADF scanning density adjustment

When the original glass (1) is replaced, adjusts the density when reading the original with the RADF.

Before preforming this adjustment, be careful of the following items.

- The mechanical adjustment, optical adjustment and electrically adjustment of the scanner were completed.
- Clean the original glass (1).
- The white chart is not dirty or folded.

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 8. RADF adj. key.
3	**[RADF adj. screen]** Press the 5. RADF Scan density adj. key.
4	**[RADF Scan density adj. screen]** Set the white chart on RADF (Note 1).
5	Press the START key.
6	Cheek that the “Completed” will apper in the message display area.
7	If the then “Error” will appears in the message display area, then repeat above steps 4 and 5 (Note 2).
8	Press the RETURN key to return to the RADF adj screen.

NOTE1: Be sure to set the white chart orientation to the orientation of A4.

NOTE2: If “ERROR” is displayed repeatedly, there is a possibility in the adjustment of the scanner machine, optics, electric-related or parts defect

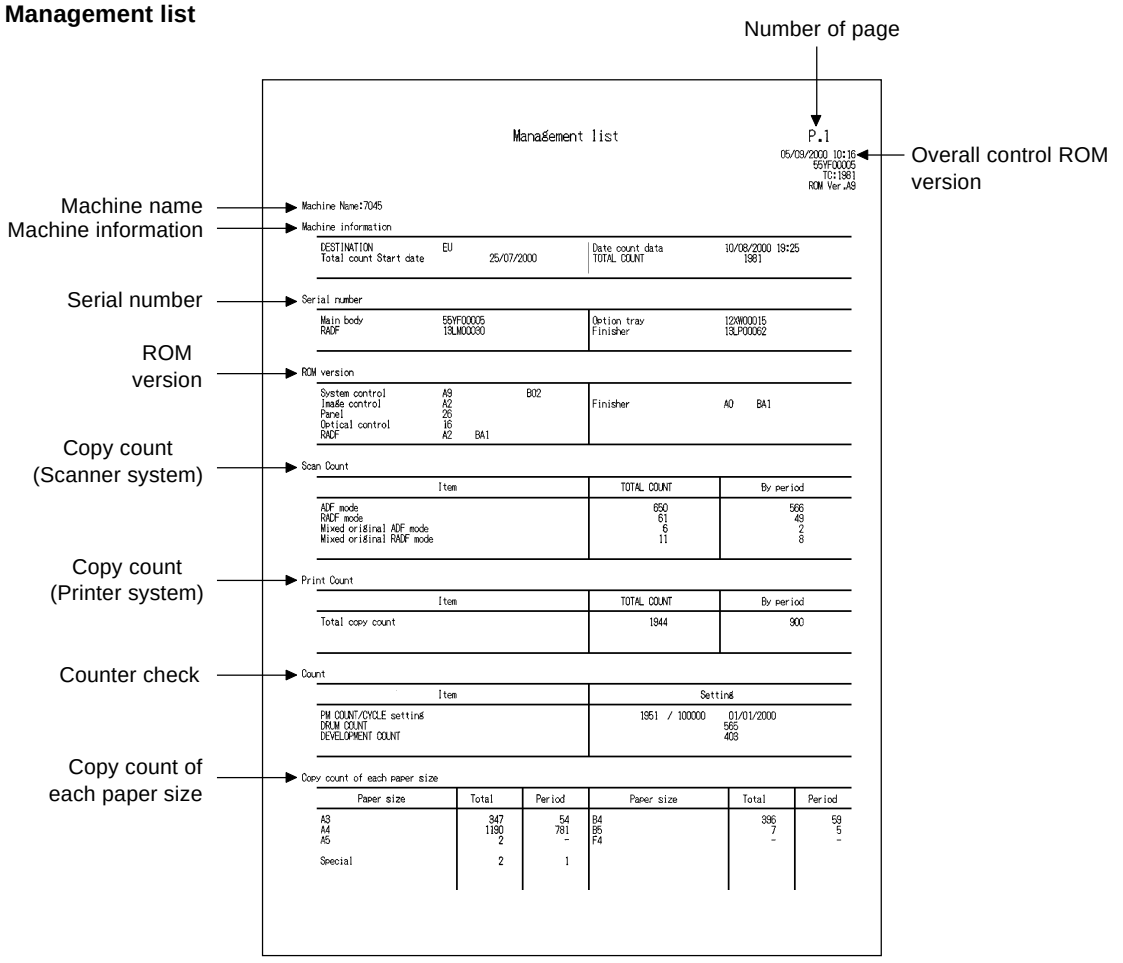
Management list

P.1

[Description Items]

- Serial number indication.
- ROM version indication.
  Version of flash ROMs.
- Copy count (Collecting data-1).
  Total count and count during the specified period by mode.
- Checking counters.
- Copy count by paper size (Collecting data-2).
  Total count and count during the specified period by paper size.

Management list



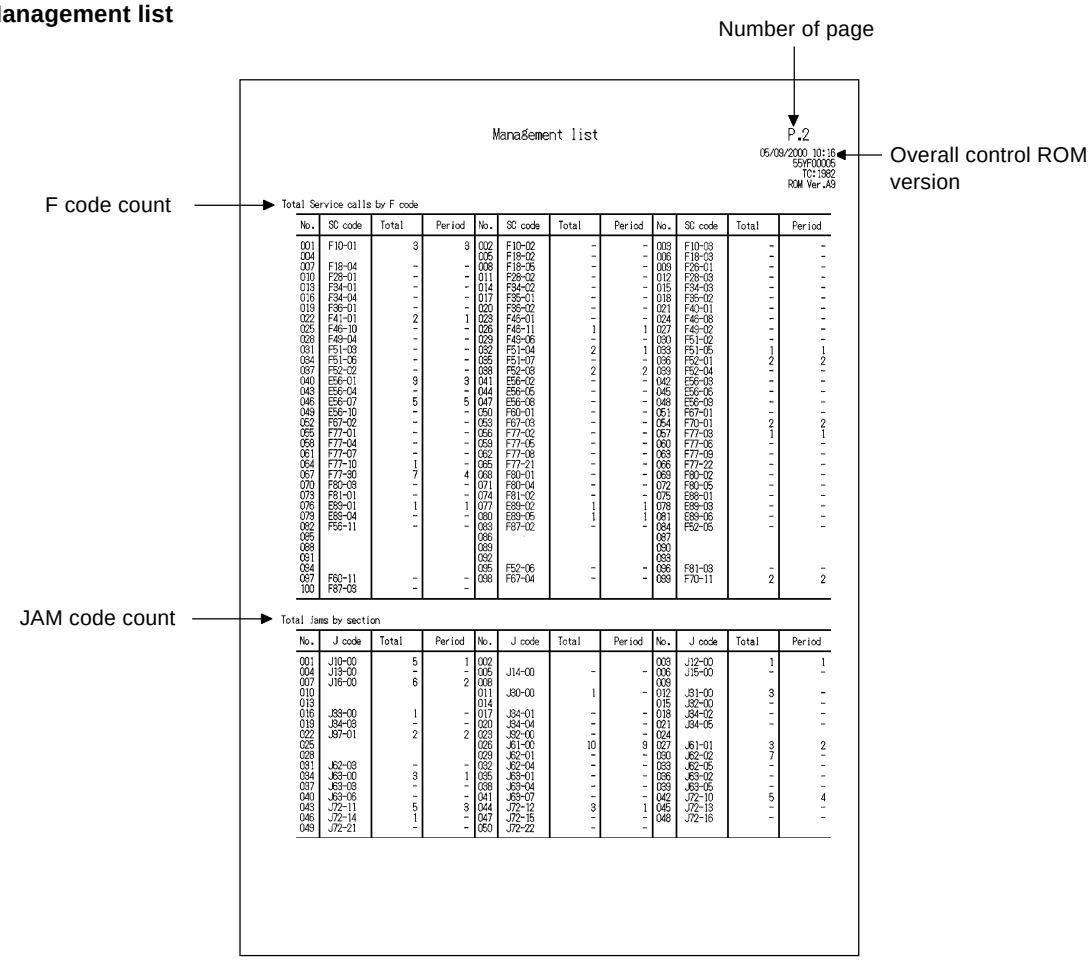
Management list

P.2

[Description Items]

- F code count (Collecting data-4).
  Total count and count during the specified periods.
- JAM code count (Collecting data-2).
  Total count and count during the specified period.

Management list



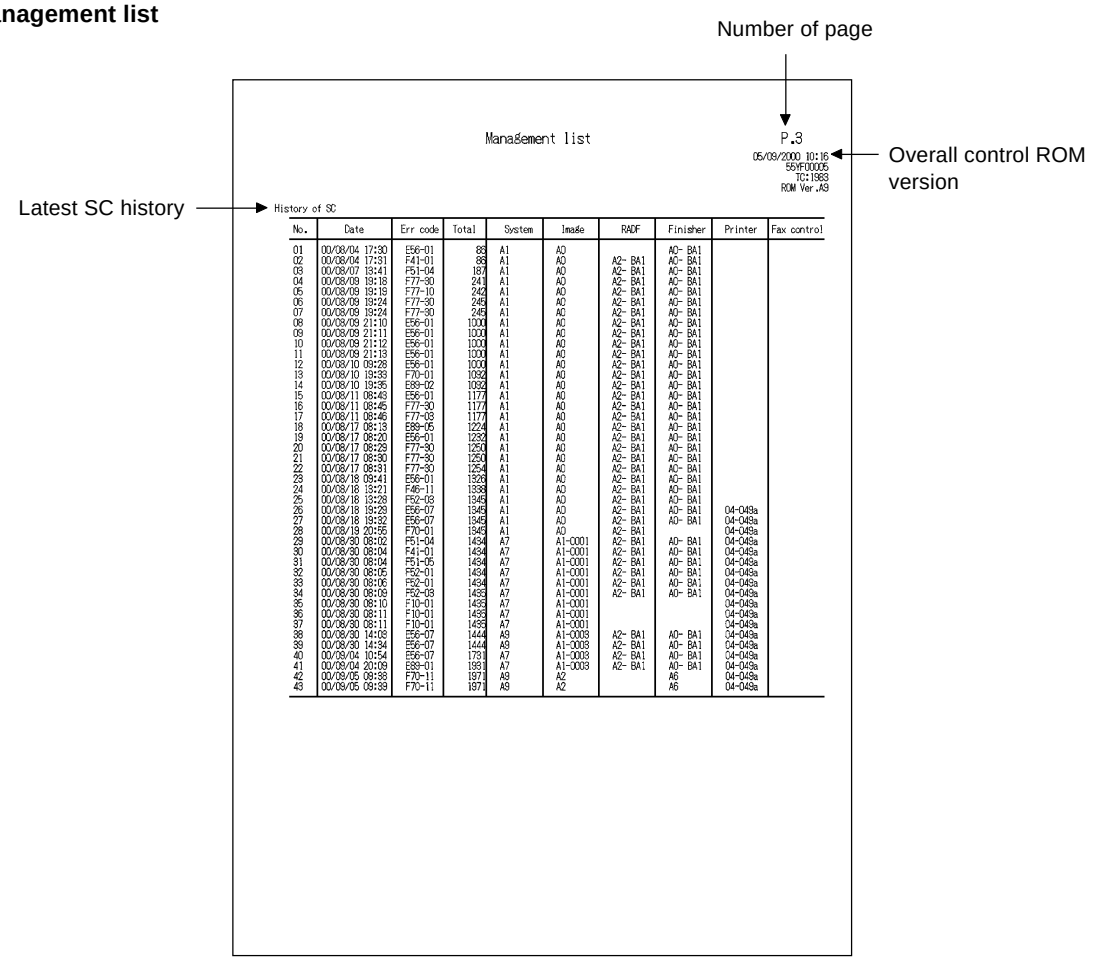
Management list	P.3

[Description Items]

- Latest SC (F/E code) history.

  List information about the last 50 service calls (F/E codes). For each call, indicates the following: date and time of occurrence, error code, total copy count, and ROM version.

Management list



No.	Date	Err code	Total	System	Image	RADF	Finisher	Printer	Fax control
01	00/08/04 17:30	E56-01	88	A1	A0		A0- BA1		
02	00/08/04 17:31	F41-01	88	A1	A0	A2- BA1	A0- BA1		
03	00/08/07 19:41	F51-04	187	A1	A0	A2- BA1	A0- BA1		
04	00/08/09 19:18	F77-90	241	A1	A0	A2- BA1	A0- BA1		
05	00/08/09 19:19	F77-10	242	A1	A0	A2- BA1	A0- BA1		
06	00/08/09 19:24	F77-90	245	A1	A0	A2- BA1	A0- BA1		
07	00/08/09 19:24	F77-90	245	A1	A0	A2- BA1	A0- BA1		
08	00/08/09 21:10	E56-01	1000	A1	A0	A2- BA1	A0- BA1		
09	00/08/09 21:11	E56-01	1000	A1	A0	A2- BA1	A0- BA1		
10	00/08/09 21:12	E56-01	1000	A1	A0	A2- BA1	A0- BA1		
11	00/08/09 21:13	E56-01	1000	A1	A0	A2- BA1	A0- BA1		
12	00/08/10 09:28	E56-01	1000	A1	A0	A2- BA1	A0- BA1		
13	00/08/10 19:33	F70-01	1092	A1	A0	A2- BA1	A0- BA1		
14	00/08/10 19:35	E89-02	1092	A1	A0	A2- BA1	A0- BA1		
15	00/08/11 08:43	E56-01	1177	A1	A0	A2- BA1	A0- BA1		
16	00/08/11 08:45	F77-90	1177	A1	A0	A2- BA1	A0- BA1		
17	00/08/11 08:46	F77-03	1177	A1	A0	A2- BA1	A0- BA1		
18	00/08/17 08:13	E89-05	1224	A1	A0	A2- BA1	A0- BA1		
19	00/08/17 08:20	E56-01	1232	A1	A0	A2- BA1	A0- BA1		
20	00/08/17 08:29	F77-90	1250	A1	A0	A2- BA1	A0- BA1		
21	00/08/17 08:30	F77-90	1250	A1	A0	A2- BA1	A0- BA1		
22	00/08/17 08:31	F77-90	1254	A1	A0	A2- BA1	A0- BA1		
23	00/08/18 09:41	E56-01	1326	A1	A0	A2- BA1	A0- BA1		
24	00/08/18 13:21	F46-11	1338	A1	A0	A2- BA1	A0- BA1		
25	00/08/18 13:28	F52-03	1345	A1	A0	A2- BA1	A0- BA1		
26	00/08/18 19:28	E56-07	1345	A1	A0	A2- BA1	A0- BA1	04-043a	
27	00/08/18 19:32	E56-07	1345	A1	A0	A2- BA1	A0- BA1	04-043a	
28	00/08/19 20:56	F70-01	1345	A1	A0	A2- BA1		04-043a	
29	00/08/30 08:02	F51-04	1494	A7	A1-0001	A2- BA1	A0- BA1	04-043a	
30	00/08/30 08:04	F41-01	1494	A7	A1-0001	A2- BA1	A0- BA1	04-043a	
31	00/08/30 08:04	F51-05	1494	A7	A1-0001	A2- BA1	A0- BA1	04-043a	
32	00/08/30 08:05	F52-01	1494	A7	A1-0001	A2- BA1	A0- BA1	04-043a	
33	00/08/30 08:06	F52-01	1494	A7	A1-0001	A2- BA1	A0- BA1	04-043a	
34	00/08/30 08:08	F52-08	1495	A7	A1-0001	A2- BA1	A0- BA1	04-043a	
35	00/08/30 08:10	F10-01	1495	A7	A1-0001			04-043a	
36	00/08/30 08:11	F10-01	1495	A7	A1-0001			04-043a	
37	00/08/30 08:11	F10-01	1495	A7	A1-0001			04-043a	
38	00/08/30 14:08	E56-07	1444	A9	A1-0003	A2- BA1	A0- BA1	04-043a	
39	00/08/30 14:34	E56-07	1444	A9	A1-0003	A2- BA1	A0- BA1	04-043a	
40	00/09/04 10:54	E56-07	1791	A7	A1-0003	A2- BA1	A0- BA1	04-043a	
41	00/09/04 20:09	E89-01	1893	A7	A1-0003	A2- BA1	A0- BA1	04-043a	
42	00/09/05 09:38	F70-11	1971	A9	A2		A6	04-043a	
43	00/09/05 09:39	F70-11	1971	A9	A2		A6	04-043a	

Management list

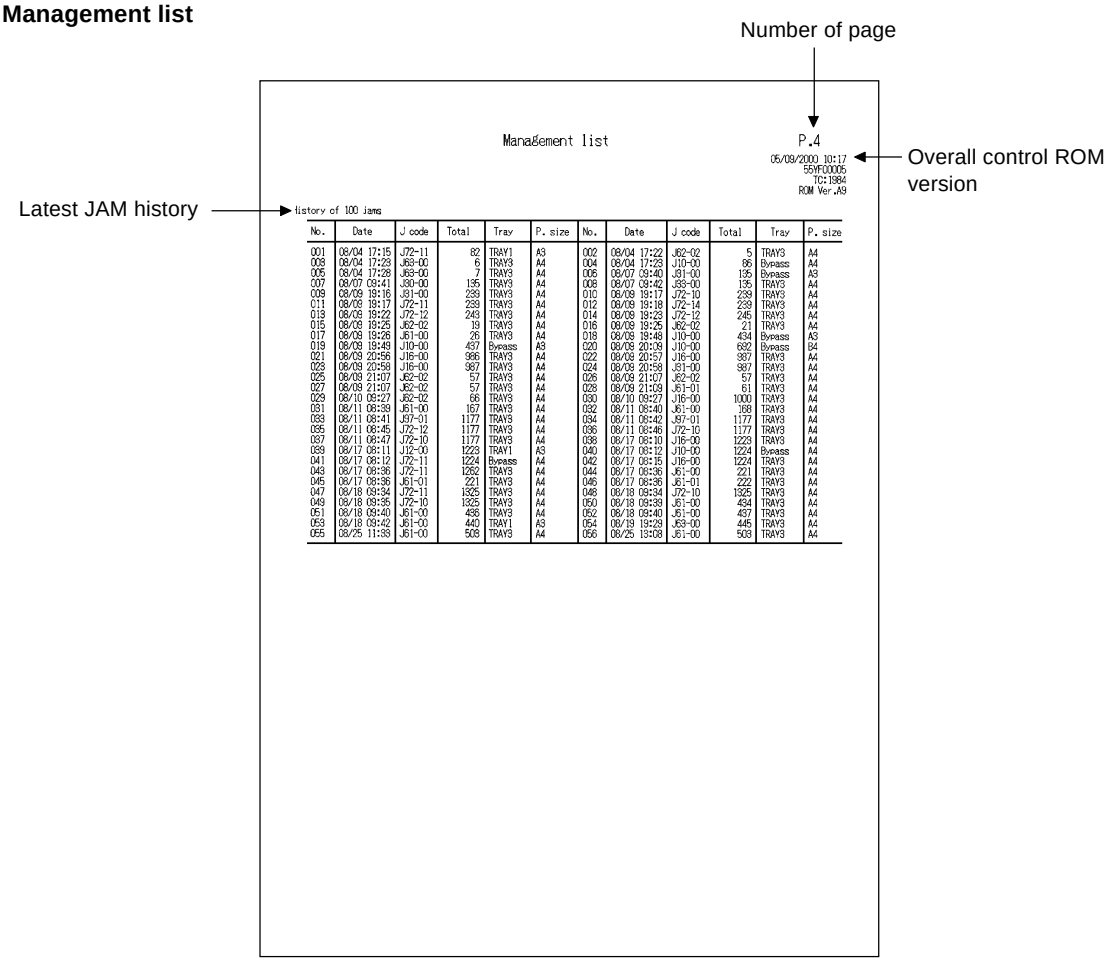
P.4

[Description Items]

- Latest JAM history.

  The latest 100 jams are listed with the information on the date occurred, respective JAM codes, total copy count,and tray and paper sizes.

Management list



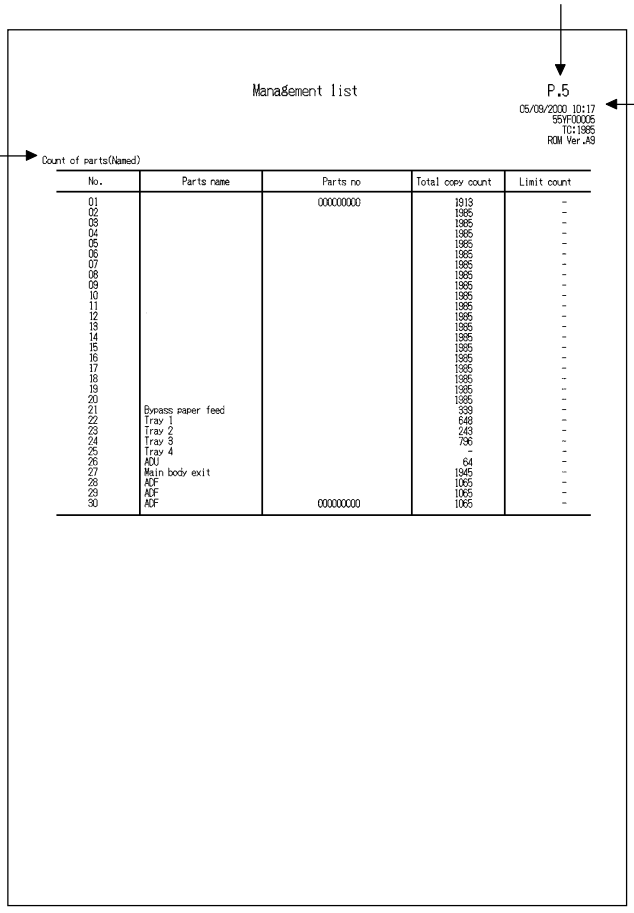
No.	Date	J code	Total	Tray	P. size	No.	Date	J code	Total	Tray	P. size
001	08/04 17:15	J72-11	82	TRAY1	A3	002	08/04 17:22	J62-02	5	TRAY3	A4
003	08/04 17:23	J63-00	6	TRAY3	A4	004	08/04 17:23	J10-00	86	Bypass	A4
005	08/04 17:28	J63-00	7	TRAY3	A4	006	08/07 09:40	J81-00	135	Bypass	A3
007	08/07 09:41	J30-00	135	TRAY3	A4	008	08/07 09:42	J83-00	135	TRAY3	A4
009	08/09 19:16	J81-00	239	TRAY3	A4	010	08/09 19:17	J72-10	239	TRAY3	A4
011	08/09 19:17	J72-11	239	TRAY3	A4	012	08/09 19:18	J72-14	239	TRAY3	A4
013	08/09 19:22	J72-12	243	TRAY3	A4	014	08/09 19:23	J72-12	245	TRAY3	A4
015	08/09 19:25	J62-02	19	TRAY3	A4	016	08/09 19:25	J62-02	21	TRAY3	A4
017	08/09 19:26	J61-00	26	TRAY3	A4	018	08/09 19:48	J10-00	434	Bypass	A3
019	08/09 19:49	J10-00	437	Bypass	A3	020	08/09 20:09	J10-00	692	Bypass	B4
021	08/09 20:56	J16-00	986	TRAY3	A4	022	08/09 20:57	J16-00	987	TRAY3	A4
023	08/09 20:58	J16-00	987	TRAY3	A4	024	08/09 20:59	J61-00	987	TRAY3	A4
025	08/09 21:07	J62-02	57	TRAY3	A4	026	08/09 21:07	J62-02	57	TRAY3	A4
027	08/09 21:07	J62-02	57	TRAY3	A4	028	08/09 21:09	J61-01	61	TRAY3	A4
029	08/10 09:27	J62-02	66	TRAY3	A4	030	08/10 09:27	J16-00	1000	TRAY3	A4
031	08/11 08:39	J61-00	167	TRAY3	A4	032	08/11 08:40	J61-00	168	TRAY3	A4
033	08/11 08:41	J97-01	1177	TRAY3	A4	034	08/11 08:42	J97-01	1177	TRAY3	A4
035	08/11 08:45	J72-12	1177	TRAY3	A4	036	08/11 08:46	J72-10	1177	TRAY3	A4
037	08/11 08:47	J72-10	1177	TRAY3	A4	038	08/17 08:10	J16-00	1223	TRAY3	A4
039	08/17 08:11	J12-20	1223	TRAY1	A3	040	08/17 08:12	J10-00	1224	Bypass	A4
041	08/17 08:12	J72-11	1224	Bypass	A4	042	08/17 08:15	J16-00	1224	TRAY3	A4
043	08/17 08:36	J72-11	1262	TRAY3	A4	044	08/17 08:36	J61-00	221	TRAY3	A4
045	08/17 08:36	J61-01	221	TRAY3	A4	046	08/17 08:36	J61-01	222	TRAY3	A4
047	08/18 09:34	J72-11	1325	TRAY3	A4	048	08/18 09:34	J72-10	1325	TRAY3	A4
049	08/18 09:35	J72-10	1325	TRAY3	A4	050	08/18 09:39	J61-00	434	TRAY3	A4
051	08/18 09:40	J61-00	436	TRAY3	A4	052	08/18 09:40	J61-00	437	TRAY3	A4
053	08/18 09:42	J61-00	443	TRAY1	A3	054	08/19 19:29	J63-00	445	TRAY3	A4
055	08/25 11:33	J61-00	509	TRAY3	A4	056	08/25 13:08	J61-00	509	TRAY3	A4

Management list	P.5

[Description Items]

- Copy count by arbitrarily replacement parts (Count of parts (Named)).
  Part name, part number, copy count and limit count of each parts.

Management list



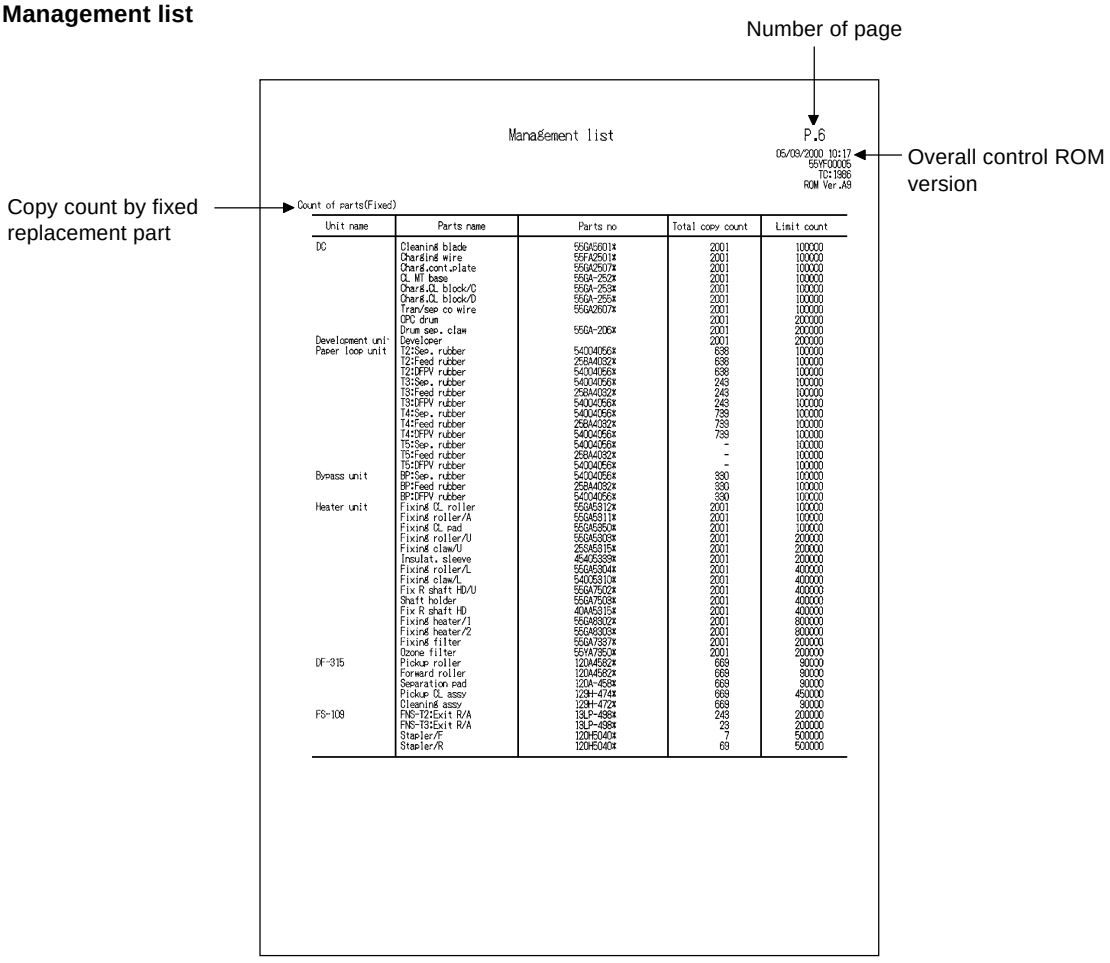
Management list

P.6

[Description Items]

- Copy count by fixed replacement part (Count of parts (Fixed)).
  Part name, part number, copy count and limit count of each unit.

Management list



Unit name	Parts name	Parts no	Total copy count	Limit count
DC	Cleaning blade	56GA5601※	2001	100000
	Charging wire	56FA2501※	2001	100000
	Charg.cont.plate	56GA2507※	2001	100000
	OL MT base	56GA-252※	2001	100000
	Charg.OL block/C	56GA-253※	2001	100000
	Charg.OL block/D	56GA-255※	2001	100000
	Tranv/sep co wire	56GA2607※	2001	100000
	OPC drum		2001	200000
	Drum sep. claw	56GA-206※	2001	200000
Development unit	Developer		2001	200000
Paper loop unit	T2:Sep. rubber	54DD4056※	698	100000
	T2:Feed rubber	258A4092※	638	100000
	T2:DFPV rubber	54DD4056※	638	100000
	T3:Sep. rubber	54DD4056※	249	100000
	T3:Feed rubber	258A4092※	249	100000
	T3:DFPV rubber	54DD4056※	249	100000
	T4:Sep. rubber	54DD4056※	799	100000
	T4:Feed rubber	258A4092※	799	100000
	T4:DFPV rubber	54DD4056※	799	100000
	T5:Sep. rubber	54DD4056※	-	100000
	T5:Feed rubber	258A4092※	-	100000
	T5:DFPV rubber	54DD4056※	-	100000
Bypass unit	BP:Sep. rubber	54DD4056※	930	100000
	BP:Feed rubber	258A4092※	930	100000
	BP:DFPV rubber	54DD4056※	930	100000
Heater unit	Fixing OL roller	56GA5812※	2001	100000
	Fixing roller/A	56GA5811※	2001	100000
	Fixing OL pad	56GA5950※	2001	100000
	Fixing roller/U	56GA5808※	2001	200000
	Fixing claw/U	259A5815※	2001	200000
	Insulat.sleeve	45405389※	2001	200000
	Fixing roller/L	56GA5804※	2001	400000
	Fixing claw/L	54DD5810※	2001	400000
	Fix R shaft HD/U	56GA7502※	2001	400000
	Shaft holder	56GA7503※	2001	400000
	Fix R shaft HD	40AA5815※	2001	400000
	Fixing heater/1	56GA8302※	2001	800000
	Fixing heater/2	56GA8203※	2001	800000
	Fixing filter	56GA7397※	2001	200000
	Ozone filter	55YA7950※	2001	200000
DF-315	Pickup roller	120A4582※	669	90000
	Forward roller	120A4582※	669	90000
	Separation pad	120A-458※	669	90000
	Pickup OL assy	129H-474※	669	450000
	Cleaning assy	129H-477※	669	90000
FS-109	FNS-T2:Exit R/A	13LP-498※	249	200000
	FNS-T3:Exit R/A	13LP-498※	23	200000
	Stapler/F	120H5040※	7	500000
	Stapler/R	120H5040※	69	500000

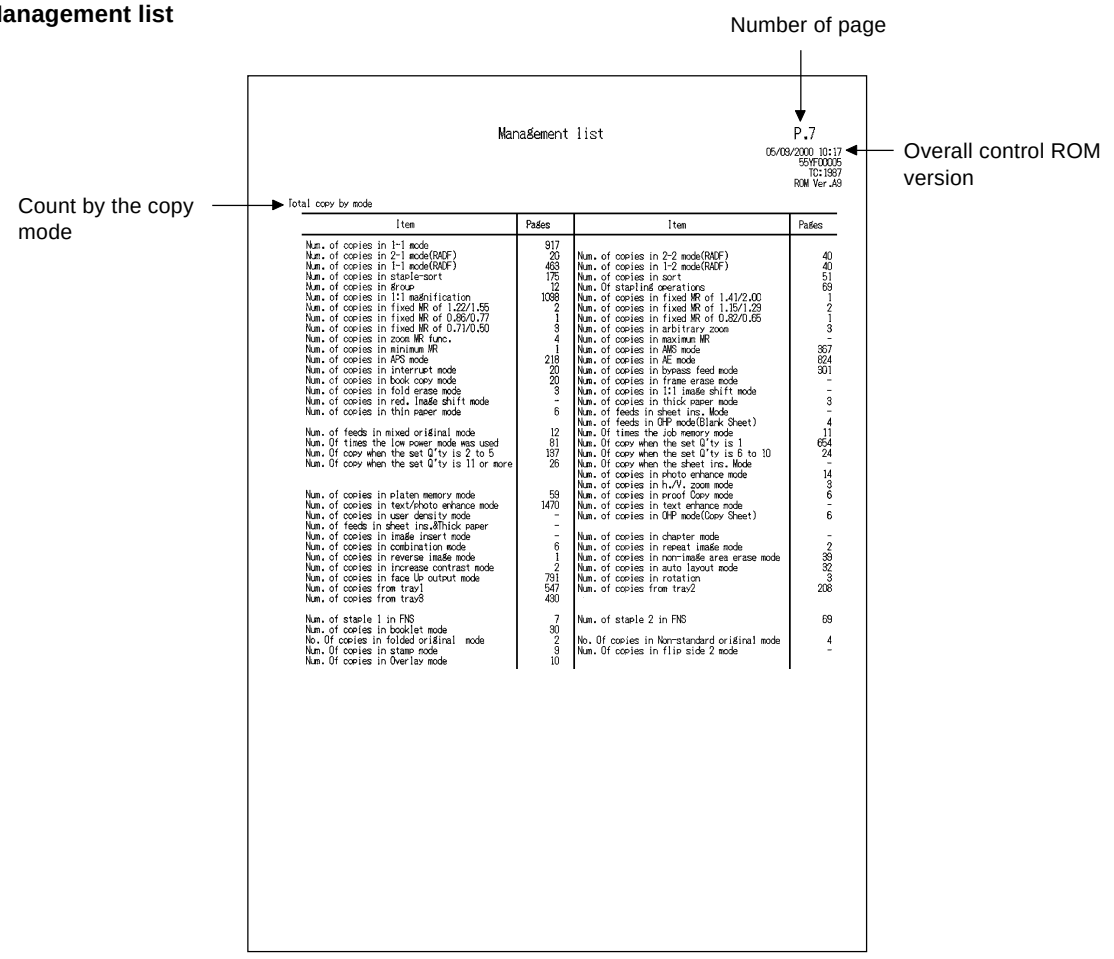
Management list

P.7

[Description Items]

- Count by the copy mode (Collecting data-3).

Management list



Item	Pages	Item	Pages
Num. of copies in 1-1 mode	917		
Num. of copies in 2-1 mode(RADF)	20	Num. of copies in 2-2 mode(RADF)	40
Num. of copies in 1-1 mode(RADF)	468	Num. of copies in 1-2 mode(RADF)	40
Num. of copies in staple-sort	176	Num. of copies in sort	51
Num. of copies in group	12	Num. Of stapling operations	69
Num. of copies in 1:1 magnification	1098	Num. of copies in fixed MR of 1.41/2.00	1
Num. of copies in fixed MR of 1.22/1.55	2	Num. of copies in fixed MR of 1.15/1.29	2
Num. of copies in fixed MR of 0.86/0.77	1	Num. of copies in fixed MR of 0.82/0.65	1
Num. of copies in fixed MR of 0.71/0.50	3	Num. of copies in arbitrary zoom	3
Num. of copies in zoom MR func.	4	Num. of copies in maximum MR	-
Num. of copies in minimum MR	1	Num. of copies in AMS mode	367
Num. of copies in APS mode	218	Num. of copies in AE mode	824
Num. of copies in interrupt mode	20	Num. of copies in bypass feed mode	901
Num. of copies in book copy mode	20	Num. of copies in frame erase mode	-
Num. of copies in fold erase mode	3	Num. of copies in 1:1 image shift mode	-
Num. of copies in red. Image shift mode	-	Num. of copies in thick paper mode	3
Num. of copies in thin paper mode	6	Num. of feeds in sheet ins. Mode	-
		Num. of feeds in OHP mode(Blank Sheet)	4
Num. of feeds in mixed original mode	12	Num. Of times the job memory mode	11
Num. Of times the low power mode was used	81	Num. Of copy when the set Q'ty is 1	654
Num. Of copy when the set Q'ty is 2 to 5	197	Num. Of copy when the set Q'ty is 6 to 10	24
Num. Of copy when the set Q'ty is 11 or more	26	Num. Of copy when the sheet ins. Mode	-
		Num. of copies in photo enhance mode	14
		Num. of copies in h./V. zoom mode	3
Num. of copies in platen memory mode	59	Num. of copies in proof Copy mode	6
Num. of copies in text/photo enhance mode	1470	Num. of copies in text enhance mode	-
Num. of copies in user density mode	-	Num. of copies in OHP mode(Copy Sheet)	6
Num. of feeds in sheet ins.&Thick paper	-		
Num. of copies in image insert mode	-	Num. of copies in chapter mode	-
Num. of copies in combination mode	6	Num. of copies in repeat image mode	2
Num. of copies in reverse image mode	1	Num. of copies in non-image area erase mode	33
Num. of copies in increase contrast mode	2	Num. of copies in auto layout mode	32
Num. of copies in face Up output mode	791	Num. of copies in rotation	3
Num. of copies from tray1	547	Num. of copies from tray2	208
Num. of copies from tray3	430		
Num. of staple 1 in FNS	7	Num. of staple 2 in FNS	69
Num. of copies in booklet mode	90		
No. Of copies in folded original mode	2	No. Of copies in Non-standard original mode	4
Num. Of copies in stamp mode	9	Num. Of copies in flip side 2 mode	-
Num. Of copies in Overlay mode	10		

Management list	P.8

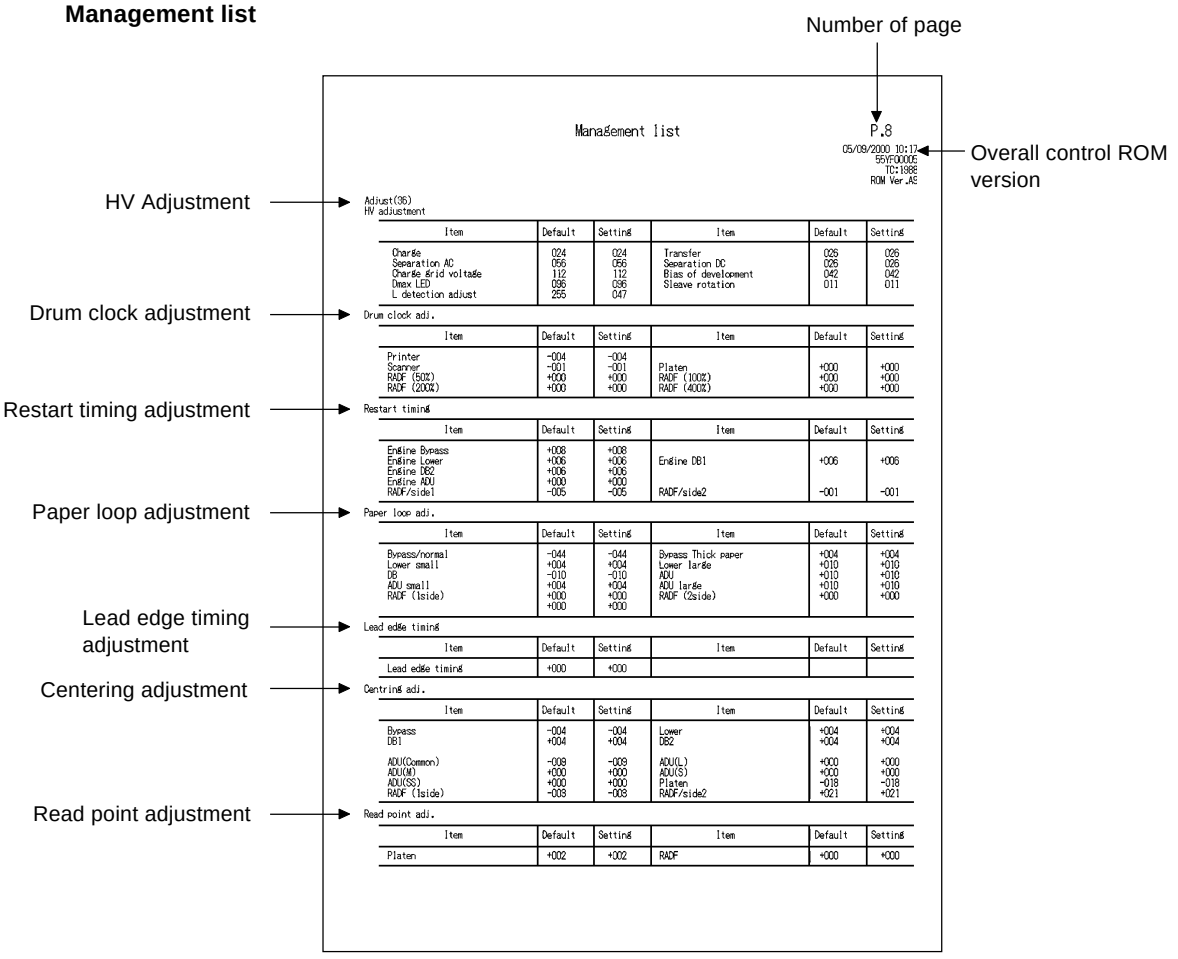
[Description Items]

- Adjusting values (36 mode).

  Default values and setting values of the HV adjustment, drum clock adjustment, restart timing adjustment, paper loop adjustment, lead edge timing adjustment, centering adjustment and read point adjustment.

* Adjustment list Page1

Management list


Number of page
Management list
P.8
05/09/2000 10:17
55YF00005
TC:1988
ROM Ver.AE
Overall control ROM version
HV Adjustment
Drum clock adjustment
Restart timing adjustment
Paper loop adjustment
Lead edge timing adjustment
Centering adjustment
Read point adjustment
Adjust(36)
HV adjustment
Item | Default | Setting | Item | Default | Setting
Charge | 024 | 024 | Transfer | 026 | 026
Separation AC | 056 | 056 | Separation DC | 026 | 026
Charge grid voltage | 112 | 112 | Bias of development | 042 | 042
Dmax LED | 096 | 096 | Sleave rotation | 011 | 011
L detection adjust | 255 | 047
Drum clock adj.
Item | Default | Setting | Item | Default | Setting
Printer | -004 | -004
Scanner | -001 | -001 | Platen | +000 | +000
RADF (50%) | +000 | +000 | RADF (100%) | +000 | +000
RADF (200%) | +000 | +000 | RADF (400%) | +000 | +000
Restart timing
Item | Default | Setting | Item | Default | Setting
Engine Bypass | +008 | +008
Engine Lower | +006 | +006 | Engine DB1 | +006 | +006
Engine DB2 | +006 | +006
Engine ADU | +000 | +000
RADF/side1 | -005 | -005 | RADF/side2 | -001 | -001
Paper loop adj.
Item | Default | Setting | Item | Default | Setting
Bypass/normal | -044 | -044 | Bypass Thick paper | +004 | +004
Lower small | +004 | +004 | Lower large | +010 | +010
DB | -010 | -010 | ADU | +010 | +010
ADU small | +004 | +004 | ADU large | +010 | +010
RADF (1side) | +000 | +000 | RADF (2side) | +000 | +000
+000 | +000
Lead edge timing
Item | Default | Setting | Item | Default | Setting
Lead edge timing | +000 | +000
Centring adj.
Item | Default | Setting | Item | Default | Setting
Bypass | -004 | -004 | Lower | +004 | +004
DB1 | +004 | +004 | DB2 | +004 | +004
ADU(Common) | -009 | -009 | ADU(L) | +000 | +000
ADU(M) | +000 | +000 | ADU(S) | +000 | +000
ADU(SS) | +000 | +000 | Platen | -018 | -018
RADF (1side) | -003 | -003 | RADF/side2 | +021 | +021
Read point adj.
Item | Default | Setting | Item | Default | Setting
Platen | +002 | +002 | RADF | +000 | +000

Management list

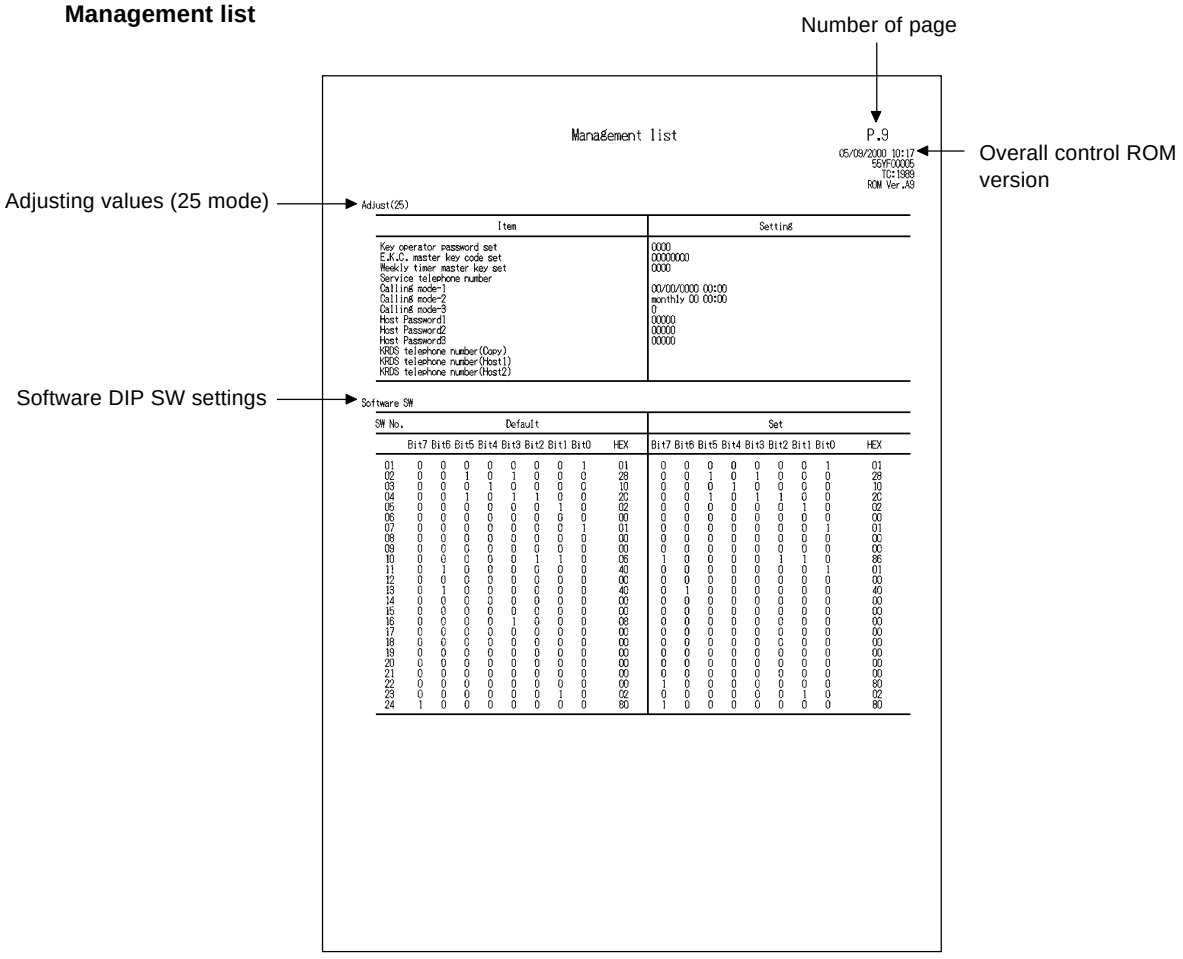
P.9

[Description Items]

- Adjusting values (25 mode)
  Values to be selected for respective adjustment items.
- 25 mode software SW setting.
  Default values and current setting value of each SW.

* Adjustment list page 3.

Management list



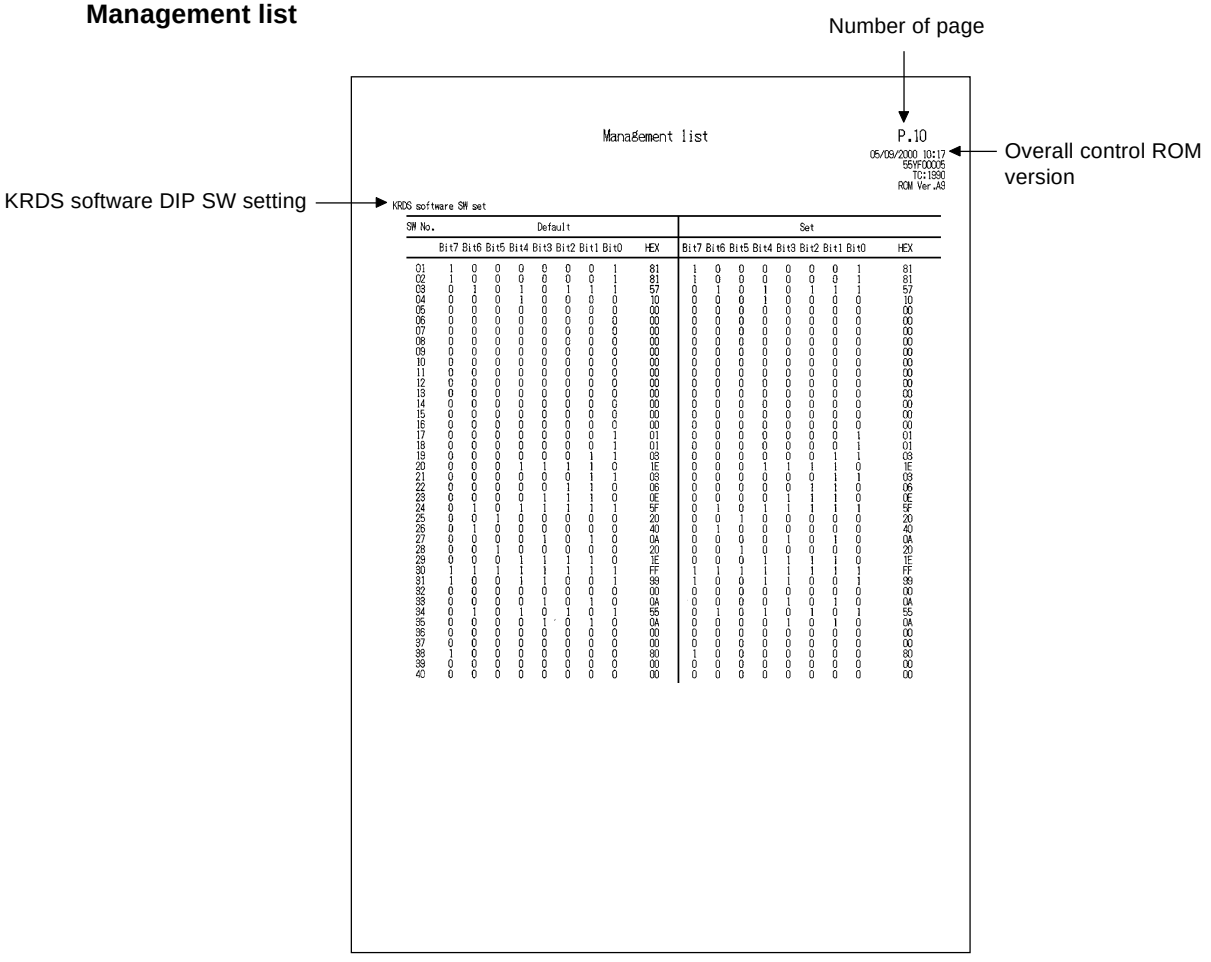
Management list	P.10

[Description Items]

- KRDS software SW setting.
  Default values and current setting value of each SW.

* Adjustment list page 4.

Management list



47 MODE

[1] 47 Mode Setting Method

1. 47 mode

This mode provides self-diagnostic functions (input/output check function) to check and adjust the various signals and loads.
Also, 47 mode has a multi-mode, it is possible to check the multiple input/output using one input/output check code.

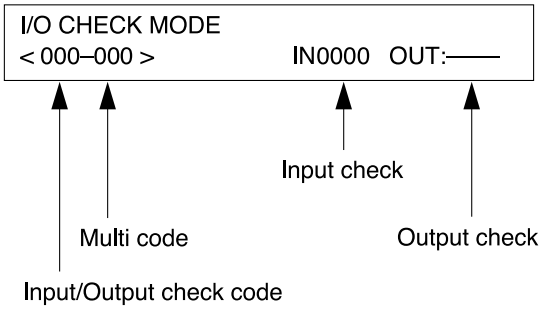
2. Operation method (To start 47 mode)

(1) 47 mode startup

a. Turn OFF the SW2 (sub power) when the SW1 (main power) remains ON.
b. Turn the SW2 (sub power) back on while holding down 4 and 7 of the numeric keys. 47 mode screen will appear on the LCD screen.
This is the 47 mode which the normal copy operation becomes disable.

[47 mode menu screen]

[47 mode message display area]



(2) Input check method

a. Using the copy numeric keys, enter the code input for the desired signal (sensor, etc.) to check.
b. When using the multi mode, press P button and enter the multi code according to the desired input check item (signal) with the copy quantity setting button.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Using the numeric keys, enter the input check code . (Note1)
3	When using the multi mode, press the P button.
4	Using the numeric keys, enter the multi code . (Note1)
5	Input check result will appear in the input check result display area.
6	To check other signal input check, repeat steps 2 to 5.

Note1: Refer to “[7] Input check (code) list”.

(3) Output check method

a. Using the numeric keys, enter the output check code of the load whose operation you wish to check.
b. When use the multi mode, press P button and enter the multi code according to the desired output check item (load).
c. Press the Start print button to perform the output check.
d. To end the output check, press the Stop/Clear button.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Using the numeric keys, enter the output check code . (Note2)
3	When using the multi mode, press the P button.
4	Using the numric keys, enter the multi code . (Note2)
5	Press the Start print button to perform the output check.
6	To end the output check, press the stop/clear button.
7	To make another output check, repeat steps 2 to 6.

Note2: Refer to “[8] Output check (code) list”.

(4) Exiting the 47 mode

To end the 47 mode, turn off the SW2 (sub power).

[2] Initial Setting in the Field

Each adjustment data is totally returned to the data value when the machine is delivered from the factory.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “9 3” by means of the numeric keys. Check that “093-000” appears in the message display area.
3	Press the start button. The message display column "NOW" display changes to "FIN" and resets and ends.
4	To end the setting, press the stop/clear button.
5	To end the 47 mode, turn off the SW2 (sub power).

[3] Drum Count Reset

When replacing the drum, perform this operation to reset the copy count of drum.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “9 1” by means of the numeric keys. Check that “091-000” appears in the message display area.
3	Press the P button.
4	Press “1” by means of the numeric keys. Check that “091-001” appears in the message display area.
5	Press the start button. The message display column "NOW" display changes to "FIN" and resets and ends.
6	To end the setting, press the stop/clear button.
7	To end the 47 mode, turn off the SW2 (sub power).

[4] RADF Original Size Detection Adjustment

Perform this adjustment when the RADF original size detection does not operate properly or when replacing the DFCB (RADF control board).

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “6 9” by means of the numeric keys. Check that “069-000” appears in the message display area.
3	Set the A5R size original on the RADF, then press the Start button.
4	Press the stop/clear button.
5	Press the P button.
6	Press “1” by means of the numeric keys. Check that “069-001” appears in the message display area.
7	Set the A3 size original on the RADF, then press the start button.
8	To end the adjustment, press the stop/clear button.
9	To end the 47 mode, turn off the SW2 (sub power).

[5] E-RDH Memory Check

Perform this adjustment when memory is expanded.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode screen]** Press "1 9 7" by means of the numeric keys. Check that "197-000" appears in the message display area.
3	Press the start button.
4	The "OUT:" entry in the message display area indicates the total size of the E-RDH memory (inclusive of the 32MB provided as standard). • 32MB (standard) : 0032 • 32MB + 64MB : 0096 • 32MB + 64MB + 64MB : 0160 • 32MB + 128MB : 0160 • 32MB + 128MB + 128MB : 0288
5	Press the stop/clear button.
6	**[47 mode screen]**
	Enter a value of "1 9 8" using the numeric keys. Be sure that "198-000" appears in the message display area.
7	Press the start button. The system begins executing a memory check.
8	The "OUT:" entry in the message area displays "NOW" while checking is in progress, then displays "OK" if all memory is operating correctly.
9	To end the check, press the stop/clear button.
10	To end the 47 mode, turn the SW2 (sub power) OFF.

[6] RADF Sensor Adjustment

Perform this adjustment when replacing the DFCB (RADF control board).

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “6 9 P 2” by means of the numeric keys. Check that “069-002” appears in the message display area.
3	Press the start button.
4	To end the setting, press the stop/clear button.
5	To end the 47 mode, turn off the SW2 (sub power).

[7] Input Check (code) List

Classification	Name	Code	Multi code	Symbol	Display	
					OFF	ON
Analog signal	Drum temperature signal	00			Analog value	(0 to 255)
	Toner control data 0	01		PRDB		
	Toner control data 1	02		PRDB		
	Fixing temperature sensor 0	03		TH1		
	Fixing temperature sensor 1	04		TH2		
	L detection signal	05				
	Humidity sensor signal	06		HUM1		
	By-pass paper size detection signal	07		VR1		
Paper feed	No paper detection signal	10	1: Main body tray	PS31	Paper	No paper
			2: DB/upper	PS402		
			3: DB/middle	PS404		
			4: DB/lower (only for DB-208 is installed)	PS406		
			5: By-pass	PS13		
	Tray upper limit detection signal	12	1: Main body tray	PS32	Upper limit not reached	Upper limit
			2: DB/upper	PS403		
			3: DB/middle	PS405		
			4: DB/lower (only for DB-208 is installed)	PS407		
			5: By-pass			
	Paper size signal	16	1: Main body tray	SW101, 102, 103, 104	Display of each paper size 2:F4R, 3:B5R, 4:A5, 6:A4R, 7:A5R, 8:A3, 9:B4, 10:B6R, 11: Post card, 13:B5, 15:A4, 17:8.4X14, 21:8.5X11R, 22:5.5X8.5, 23:5.5X8.5R, 24:11X17, 31:8.5X11	
			2: DB/upper			
			3: DB/middle (only for DB-208)	SW401, 402, 403, 404		
			4: DB/lower (only for DB-208)			
			5: By-pass feed tray paper size detection PS	PS27	No paper	Paper
	Paper feed door open/close detection signal	17		PS14	Close	Open
Paper feed/ Conveyance	Paper feed sensor signal	20	1: No feed PS	PS17	No paper	Paper
			2: Registration PS	PS16		
			3: Paper feed detect (DB paper feed door open/close detect)	PS401	No paper (Door is closed)	No Paper (Door is opened)
	Paper exit sensor signal	22	1: Fixing exit PS	PS29	No paper	Paper
			2: Paper exit PS	PS1		
	Interlock	23	1: Front door	MS1	Close	Open
Optics	Optics sensor signal	40	1: Optics home position PS	PS3	Not in home position	In home position
			2: APS timing PS	PS4	Open	Close
			3: APS sensor 1	PS25	No paper	Paper
			4: APS sensor 2	PS26		

Classification	Name	Code	Multi code	Symbol	Display	
					OFF	ON
Intrinsic function	Toner level detection signal	57		TDL	No toner	Toner
RADF	RADF input	60	1: No original detect PS	PS305	No paper	Paper
			2: RADF open/close detect PS	PS301	Close	Open
			3: Cover open/close detect MS	MS301		
			4: Original regist. PS	PS306	No paper	Paper
			5: Original feed detect PS	PS308		
			6: Original reversal detect PS	PS309		
			7: Original exit detect PS	PS307		
			8: Original size detect PS 1	PS302		
			9: Original size detect PS 2	PS303		
			10: Original size detect VR	VR301		
FNS	FNS input	70	1: Drum position detect PS	PS801	OFF	ON
			2: Drum entrance PS	PS802	No paper	Paper
			3: Tray 1 paper exit PS	PS803		
			4: Paper through PS	PS804		
			5: Tray upper limit PS	PS805	Upper limit not reached	Upper limit
			6: Tray lower limit PS	PS806	Lower limit not reached	Lower limit
			7: Tray 2 full-stack detect PS	PS807	Full-stack not reached	Full-stack
			8: Tray 3 full-stack detect PS	PS809	Full-stack not reached	Full-stack
			9: Stapler no paper PS	PS812	Paper	No paper
			10: Paper exit motor HP PS	PS813	Not in home position	In home position
			11: Stapler unit HP PS	PS814		
			12: Alignment motor (front) HP PS	PS816		
			13: Alignment motor (rear) HP PS	PS815		
			14: Stapler HP (front) PS	PS817	In home position	Not in home position
			15: No stapler (front) PS	PS818	Staple	No staple
			16: Staple leading edge PS (front)	PS819		
			17: Stapler HP (rear) PS	PS820	In home position	Not in home position
			18: No staple (rear) PS	PS821	Staple	No staple
			19: Staple leading edge PS (rear)			
			20: Inter lock MS	MS801	Set (ON)	FNS is released (OFF)
			21: Stapler safety MS	MS804	OFF	ON
ADU/Reversal		80	Reversal detect PS1	PS28	No paper	Paper
		81	Reversal detect PS2	PS30	Paper	No paper
		82	ADU regist. PS	PS502	No paper	Paper
		83	ADU set detect PS		ADU is released	ADU is set

[8] Output Check (code) List

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
High voltage/ image	Exposure lamp	00		L1	
	Toner supply motor 1	01		M3, M11	
	Charging	02	Output the code specified value as reading.	HV1	X
	Transfer	03		HV2	X
	Separation (AC)	04		HV2	X
	Transfer + separation (AC+DC)	05		HV2	X
	Separation (DC)	06		HV2	X
	Grid	07		HV1	Adjust by the 36 mode.
	Dmax/ γ LED	08			Adjust by the 36 mode.
	Guide plate	10		HV2	X
	Bias	11		HV2	X
	Counter clear	15	1: Service counter clear(correcting date)		
			10: EKC data block clear		
			11: Job memory data clear		
			12: Count of parts (named) clear		
			98: KRDS non-volatile memory clear		
	Dmax level auto adjustment	18			
	PWM γ correction	19			Adjust by the 36 mode.
Paper feed	1st paper feed SD	20	1: Main body tray	SD2	Adjust by the 36 mode.
			2: By-pass	SD4	
			3: DB/upper	SD401	
			4: DB/middle	SD402	
			5: DB/lower	SD403	
	1st Paper feed motor	21	1: Main body 210 mm/sec.	M6	
			2: Main body 630 mm/sec.		
			3: DB low speed 210 mm/sec.	M401	
			4: DB high speed 610mm/sec.		
	Tray motor	23	1: Main body tray	M8	
			2: DB/upper	M402	
			3: DB/middle	M403	
			4: DB/lower	M404	
	Registration clutch	25		MC1	
	By-pass tray paper size detect VR	28		VR1	X
	Separation claw SD	29		SD1	
Optics	Opics 2-way drive motor	31		M2	
	Polygon motor	32	1: Rated rotation	M5	
			2: Wait		
	Laser PWM	36	Output the code specified value as reading.		
	LD alarm measurement	37			
	Platen stationary APS	39			

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
Main body	Conveyance motor	40		M1	
	Drum motor	41		M4	
	Fan motor	42	1: Main body cooling fan (low speed)	FM3	
			2: Main body cooling fan (high speed)		
			3: Conveyance suction fan	FM4	
			4: Polygon fan	FM6	
			5: Scanner cooling fan	FM2	
	Total counter	43		C(T)	
	Fixing heater lamp	45	1: Main heater	L2	
			2: Sub heater	L3	
	Opration panel light	48	All LEDs on		
	Developing motor	50		M3,MC2	
Intrinsic function	PCL	51		PCL	
	PSL	52		TSL	
	Agitation motor	53		M3	
	Toner auto supply	54		M11	
	Toner supply motor	55		M11	Adjust by the 36 mode.
	Developing MC	56		MC2	
	Toner level detect power source	57		TLD	
	Toner cartridge	58		M10	
	24 V power source remote	59	1: for scanner	DCPS1	
			2: for printer		
RADF	Load output	60	1: Original feed motor (forward rotation)	M302	
			2: Original feed motor (reverse rotation)		
			3: Original conveyance motor (forward rotation)	M301	
			4: Original conveyance motor (reverse rotation)		
			5: Original pick-up CL	CL301	
			6: Original feed CL	CL302	
			7: Flapper SD	SD301	
			8: Original press SD	SD302	

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
RADF	Vertical magnification data setting (50%)	61	Replace the input multi code value with the setting value.		Adjust by the 36 mode.
	Vertical magnification data setting (100%)	62			
	Vertical magnification data setting (200%)	63			
	Vertical magnification data setting (400%)	64			
	Registration data setting (face side)	65			
	Loop data setting (forward feed)	66			
	Loop data setting (reverse feed)	67			
	Registration data setting (back side)	68			
FNS	Each load of FNS	70	01: Drum position initialize	M807	
			02: Drum operation only		
			03: Conveyance operation only	M801	
			04: Rear side stapler M stapling	M803	
			05: Front side stapler M stapling	M802	
			06: Stapler movement M initialize	M806	
			07: Stapler movement M move to size position (A4 size position)		
			08: Paper exit M operation	M805	
			09: Rear side alignment M initialize	M808	
			10: Rear side alignment M move to alignment position (A4 size position)		
			11: Rear side alignment M open/close operation		
			12: Front side alignment M initialize	M809	
			13: Front side alignment M move to alignment position (A4 size position)		
			14: Front side alignment M open/close operation		
			15: Tray move down	M804	
			16: Tray move upward		
			17: Gate switching ON: Tray 1 OFF: Tray 2, 3	SD801	
			18: Tray 2 spinose roller operation	M810	
			19: Tray 3 spinose roller operation	M811	
			20: Shutter SD	SD802	

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
ADU	ADU paper feed moter	80		M501	
	Reversal paper exit motor	81	1: 210 mm/sec (forward rotation)	M12	
			2: 630 mm/sec (forward rotation)		
			3: 350 mm/sec (reverse rotation)		
			4: 630 mm/sec (reverse rotation)		
			5: 210 mm/sec (reverse rotation)		
			6: 350 mm/sec (forward rotation)		
	ADU clutch	82	1: Restart MC	MC501	
			2: Loop MC (210 mm/sec)	MC502	
			3: Loop MC (630 mm/sec)		
			4: ADU conveyance clutch	MC503	
	Gate SD	83		SD5	
Others	PM counter clear	90			
	Drum counter	91	1: Drum counter clear		
	Process initial setting	92			×
	Field initial setting (Reset to factory setting data)	93			
	Process delivery completing setting	96			×
	Lighting adjustment	97			

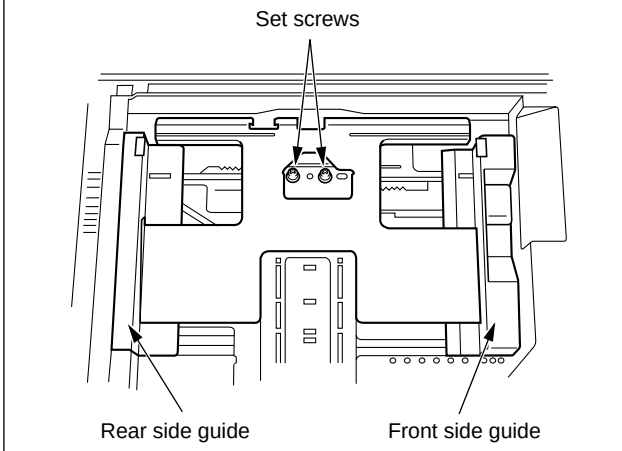
OTHER ADJUSTMENTS

[1] Centering Adjustment

1. Tools required

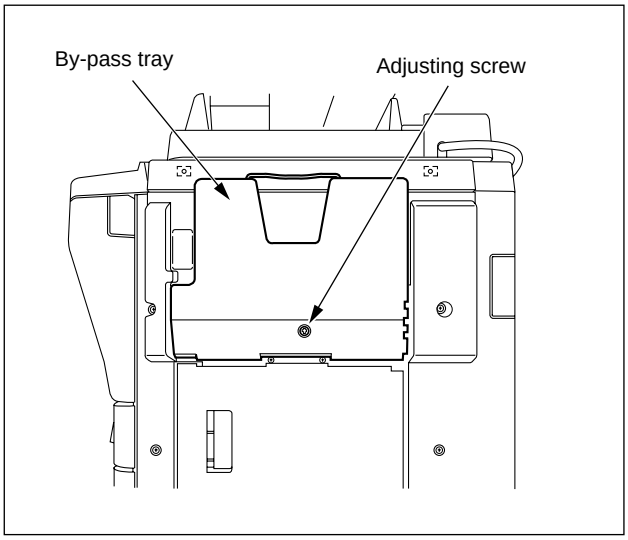
- Screwdriver, (Phillips, standard)
- Pyramid chart (A3)

2. Universal tray centering



Step	Operation procedure
1	Make a copy and measure the extent of paper centering.
2	Slide out the universal tray towards you.
3	Loosen the two set screws in the center of the tray.
4	Adjust the paper centering by moving the front and rear side guides back and forth.
5	After adjustment is complete, tighten the two screws and slide the universal tray back in place.
6	Make another copy and measure the extent of paper centering.
7	Repeat steps 2 to 6 until the extent of paper centering falls within the specified range.

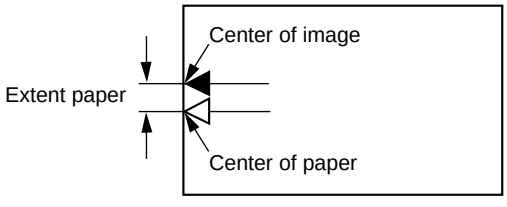
3. By-pass tray centering



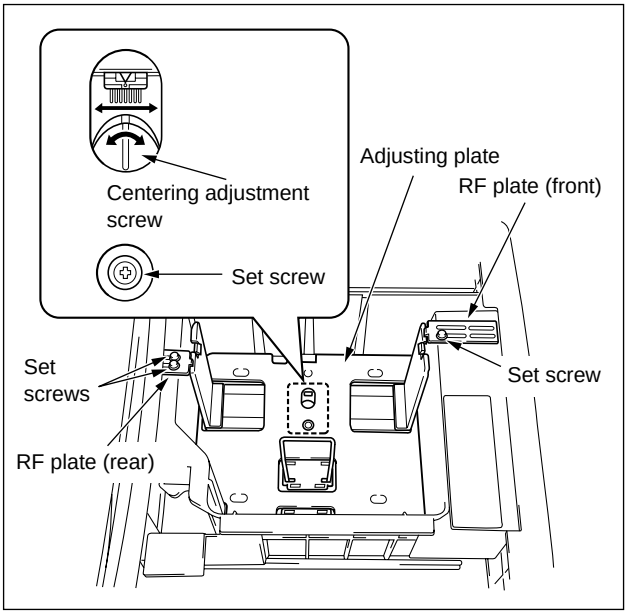
Step	Operation procedure
1	Make a copy and measure the extent of paper centering.
2	Loosen the adjustment screw and lower the by-pass tray towards you.
3	Adjust the paper centering by moving the guide back and forth.
4	After adjustment is complete, tighten the adjusting screw, make another copy, and measure the extent of paper centering.
5	Repeat steps 2 to 4 until the extent of paper centering falls within the specified range.

Specified range : Extent of paper centering

Within ± 2 mm (Main body)
Within ± 3 mm (Full system)

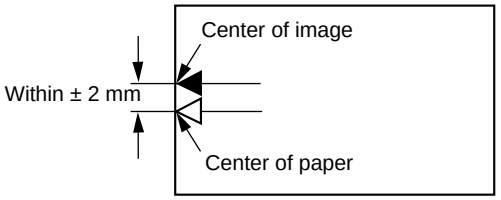


4. LCT tray centering (DB-608)



Step	Operation procedure
1	Pull out the LCT tray.
2	Loosen the screw on the RF plate (front) and two screws on the RF plate (rear).
3	Push the adjusting plate in and loosen the set screw.
4	With the adjusting plate pressed down, move the centering adjustment screw with the standard screwdriver, retighten the screws then adjust the paper centering.
5	After adjustment is complete, be sure to tighten the screw on the RF plate (front) and two screws on the RF plate (rear).
6	Repeat steps 1 to 4 until the extent of paper centering falls within the specified range.

Specified range : Extent of paper centering
Within ± 2 mm



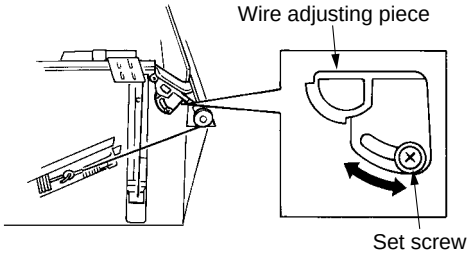
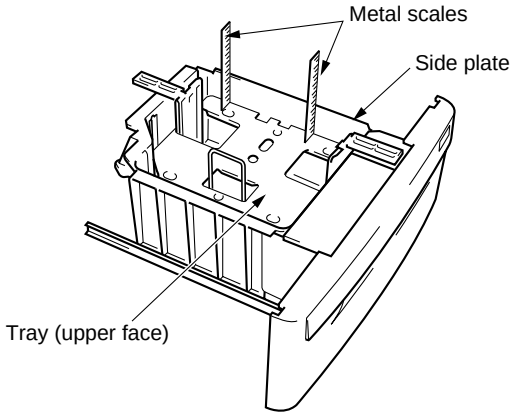
[2] Adjusting the Inclination of the Paper Tray (DB-608)

If the paper tray is inclined, it may not feed paper correctly. Adjust the inclination of the paper tray so that the tray is parallel to the paper feed roller shaft.
When replacint the up/down wires, always carry out this adjustment.

1. Tools required

- Screwdriver (Phillips head)
- Metal scale

2. Adjustment method

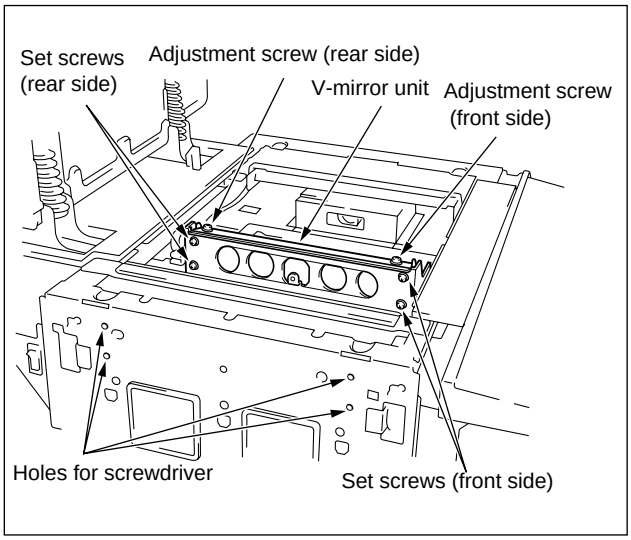
Step	Operation procedure
1	Remove the front tray cover.
2	Loosen the wire adjusting piece set screw on the front part of the tray 
3	Adjust the position of the wire adjustment piece so that the distance between the top of the side plate and the top of the tray is the same at both front and rear. 
4	After adjustment is complete, be sure to tighten the set screw on the wire adjusting piece.

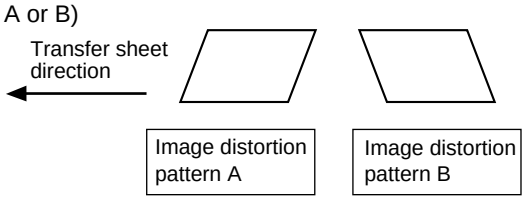
[3] Image Distortion Adjustment

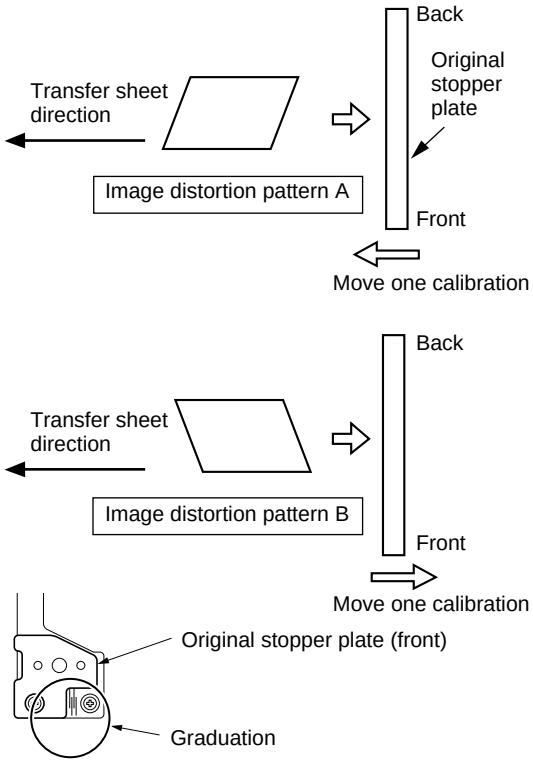
1. Tools required

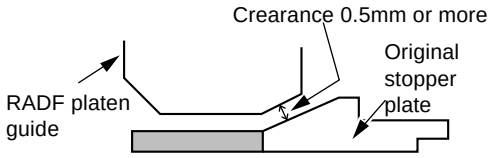
- Screwdriver (Phillips)
- Pyramid chart (A3)

2. Adjustment Method

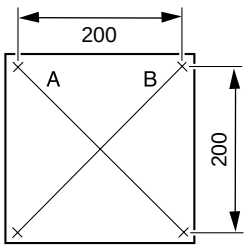


Step	Operation procedure
1	Measure the degree of image distortion in both Platen mode and ADF mode. **Note:** Measure the diagonal of the original being used beforehand.
2	Check the image distortion pattern. (either pattern A or B) 
3	If the Platen modes is within specified range (less than 0.3%) go to step 7. If not within specified range, go to step 4. Turn the power switch OFF. **Note:** Always turn the power switch OFF other than during image output.
4	Remove the Left side cover, Read cover (right), Read cover (left), Original stopper plate, Original glass and Original glass (1).
5	Move the V-mirror unit to the left side.

Step	Operation procedure
6	Adjust the image distortion. **Note:** When turning the screw on the left side of the V-mirror unit, pass the driver through the holes for screwdriver on the left side of the main body. **<For image distortion pattern A>** A. Loosen the two set screws on the front side of the V-mirror unit left side. B. After turning the adjustment screw on the front side of the upper surface of the V-mirror unit 1/2 turns clockwise, tighten the two set screws located on the front side of the left surface. C. Repeat steps A to B until the image distortion is within specified range (0.3% or less). **<For image distortion pattern B>** A. Loosen the two set screws on the rear side of the V-mirror unit left side. B. After turning the adjustment screw on the rear side of the upper surface of the V-mirror unit 1/2 turns clockwise, tighten the two set screws located on the rear side of the left surface. C. Repeat steps A to B until the image distortion is within specified range (0.3% or less).
7	Using an image distortion pattern, move the front original stopper plate one graduation (0.5 mm), then adjust the position of the original adjusting plate (front). 

Step	Operation procedure
8	Attach the RADF position adjusting jig to the original stopper plate attachment unit.
9	Loosen the ADF hinge screw and readjust the RADF position according to the RADF position adjusting jig.
10	Remove the RADF position adjusting jig.
11	Repeat steps 7 to 11 until the image distortion is within specified range (less than 0.3%).
12	Check that the paper skew for the platen mode is within specified range (less than 0.5%). If not within specified range, move the original adjustment plate (front) to adjust the original stopper plate. **Note:** Do not move the position of ADF.
13	If the original stopper plate has been adjusted in step 12, check to see that the clearance between the original stopper plate and the RADF platen guide is more than 0.5mm. If less than 0.5mm, repeat steps 7 to 13. 

Specified range:
Life size magnification: within 0.3 %
Variable magnification: within 0.5 %
for diagonal line of a square 200 mm (A, B) the difference is within 0.5 %



| A — B | < 1.4 mm

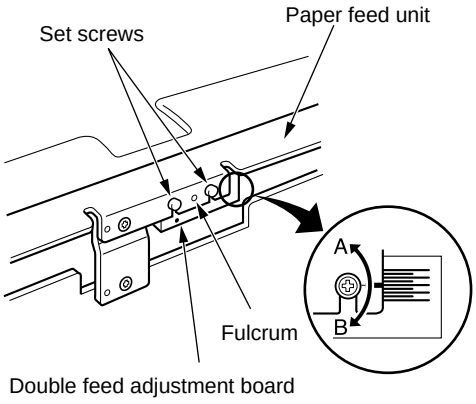
[4] Paper Skew Adjustment

1. Tools required

- Screwdriver (Phillips)
- Six angled wrench
- Pyramid chart (A3)

2. Adjusting method

Caution: Adjust the paper skew on every tray in the paper feed unit.



Step	Operation procedure
1	Make a copy and measure the paper skew.
2	Loosen the two set screws on the paper feed unit.
3	Rotate and adjust the double feed adjustment plate in the paper feed direction. • For fast copies from the front: Rotate in A direction • For fast copies from the front: Rotate in B direction.
4	Loosen the screws and make a second copy, adjusting the paper skew.
5	Repeat steps 2 to 4 until the paper skew is within the specified range below.

Specified range: Paper skew ± 0.8 % (Main body)
± 1.3 % (System)

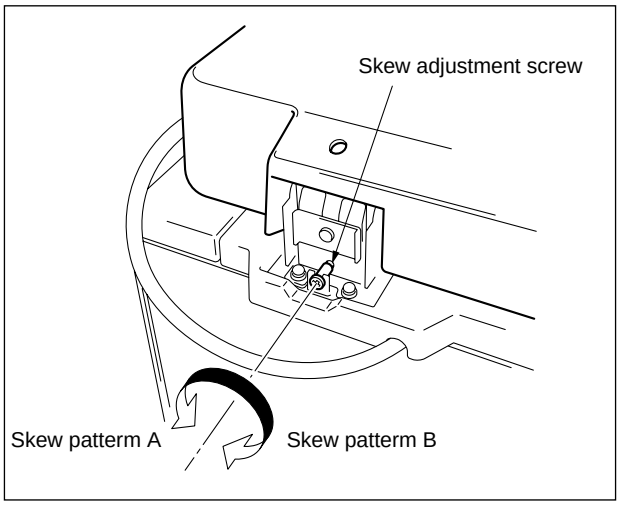
(Paper skew in the paper feed direction)

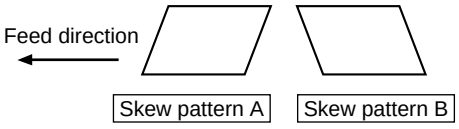
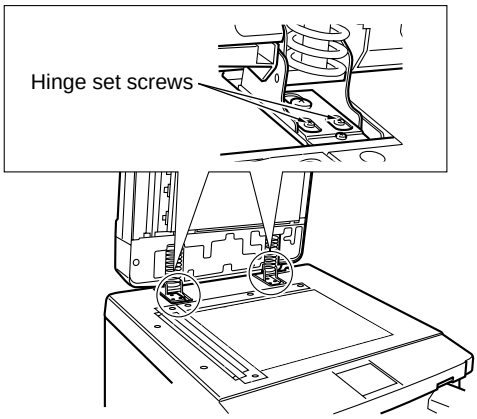
[5] RADF Skew Adjsutment (DF-315)

1. Tools required

- Screwdriver (Phillips head)

2. Adjustment method

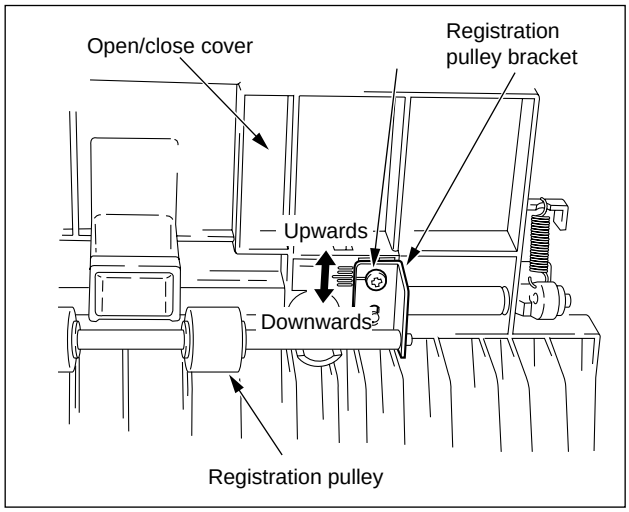


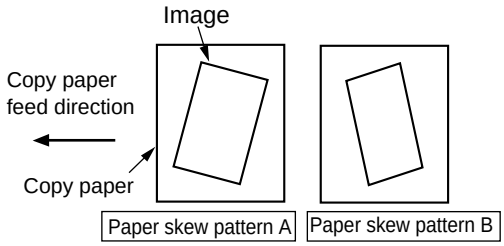
Step	Operation procedure
1	Set a A3 paper into the tray (main body).
2	Set the adjustment chart on the RADF, make a copy, and check the skew. Standart value : within ± 0.3%  Perform the follow adjustment if the skew is beyond the standard value.
3	Open the RADF and loosen the four hinge set screws (two on both the left and right). 
4	Close the RADF, tune the skew adjustment screws and adjust the skew. **For skew pattern A :** Turn the skew adjustment screw counterclockwise. **For skew pattern B :** Turn the skew adjustment screw clockwise.
5	Make a test copy and check the skew.
6	Tighten the four hinge securing screws (two on both the left and right).
7	Make adjustment by repeating step 3 to 6.

[6] RADF Paper Skew Adjustment (DF-315)

1. Face side of original paper skew adjustment

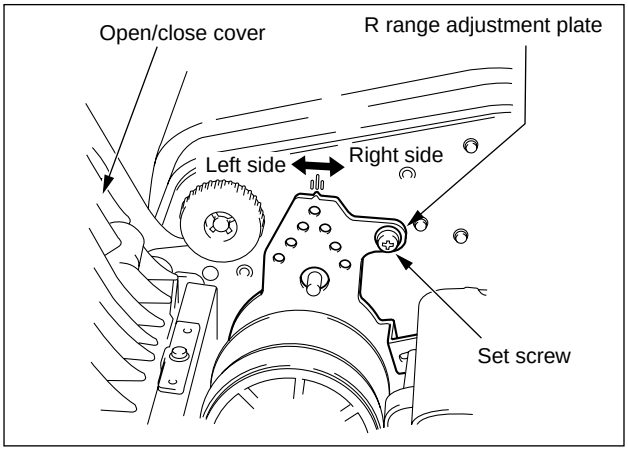
Caution: After completing RADF skew adjustment on the previous page, perform RADF paper skew adjustment.

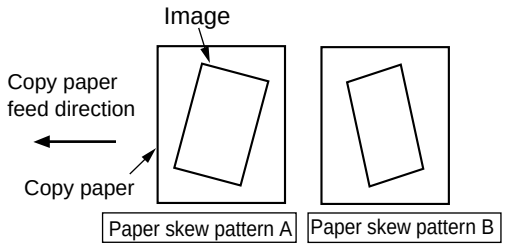


Step	Operation procedure
1	Make a copy in the single sided – single sided copy mode then check the skew of the original. (Either pattern A or B) 
2	Open the open/close cover.
3	Loosen the set screw and release the registration pulley bracket.
4	Move the registration pulley bracket one calibration in the direction below according to the paper skew pattern. **For skew in pattern A:** Move the registration pulley bracket downwards (direction down with original feed flow). **For skew in pattern B:** Move the registration pulley bracket upwards (direction up towards original feed flow). **Note:** Make sure that the registration pulley shaft does not touch the open/close cover spring holder unit.
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less).

Specified range: Paper skew ± 0.5 % or less
(Paper skew in the paper feed direction)

2. Back side of original paper skew adjustment



Step	Operation procedure
1	Make a copy in the single sided – single sided copy mode then check the skew of the original. (Either pattern A or B) 
2	Open the open/close cover.
3	Loosen the set screw and release the R range adjustment plate.
4	Move the R range adjustment plate one calibration in the direction below according to the paper skew pattern. **For skew in pattern A:** Move the R range adjustment plate to the left side. **For skew in pattern B:** Move the R range adjustment plate to the right side.
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less).

Specified range: Paper skew ± 0.5 % or less
(Paper skew in the paper feed direction)

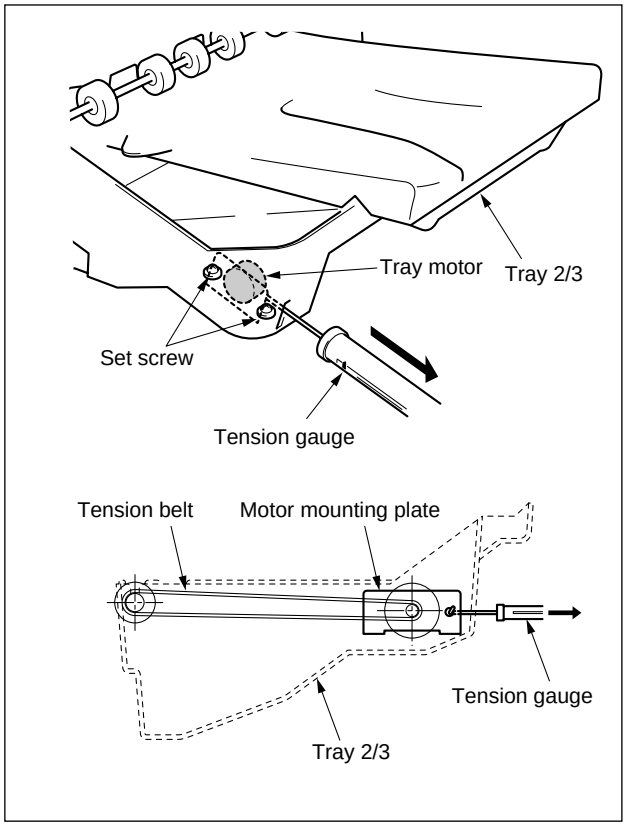
[7] Tray 2/3 Belt Tension Adjustment (FS-109)

1. Tools required

- Screwdriver (Phillips head)
- Tension gauge

2. Adjustmentz method

Note: Perform this adjustment for tray 2/3 if you remove or replace the tray 2 motor (M810) or the tray 3 motor (M811).



Step	Operation procedure
1	Temporarily fixed the set screws of the tray motor
2	Insert a tension gauge into the tray clearance, and hook it onto the motor mounting plate.
3	Pull the tension gauge in the horizontal direction, and fix the screws at the point where the reading on the tension gauge is 1 kgf ± 0.1 kgf.

Standard value: Belt tension 1 kgf ± 0.1 kgf

2

ISW

DESCRIPTION OF ISW

ISW (In-System Writer) is a process of updating the control programs stored in flash ROM mounted on various control boards in a Konica digital copier without isolating the boards from the copier. Running ISW enables you to upgrade control programs without replacing the boards and maintain the boards during their replacement.

Tools available for running ISW include ISW Trns (PC software), which connects a personal computer (PC) to the digital copier, and ISW Tool, which is a dedicated tool using EPROM.

These tools can be plugged into the ISW connector of the degital copier to directly update the control programs in flash ROM assembled in the unit.

This chapter focuses on instructions on setting up the 7045 to run ISW. For how to run ISW Trns and ISW Tool, refer to Konica ISW (In-System Writer) Servise Handbook.

Note: Procedures for using ISW Tools to update ROM data in Konica ISW (In-system Writer) Servise Handbook are divided into three types by copier model. For this unit, see “Updating the Type B Model.”

SETUP

[1] Boards that Support ISW

The following boards in the 7045 permit programs that use ISW to be rewritten.

⇑ CB (control board)
⇑ ICB (image control board)
⇑ DFCB (RADF control board)
⇑ FNSCB (FNS control board)

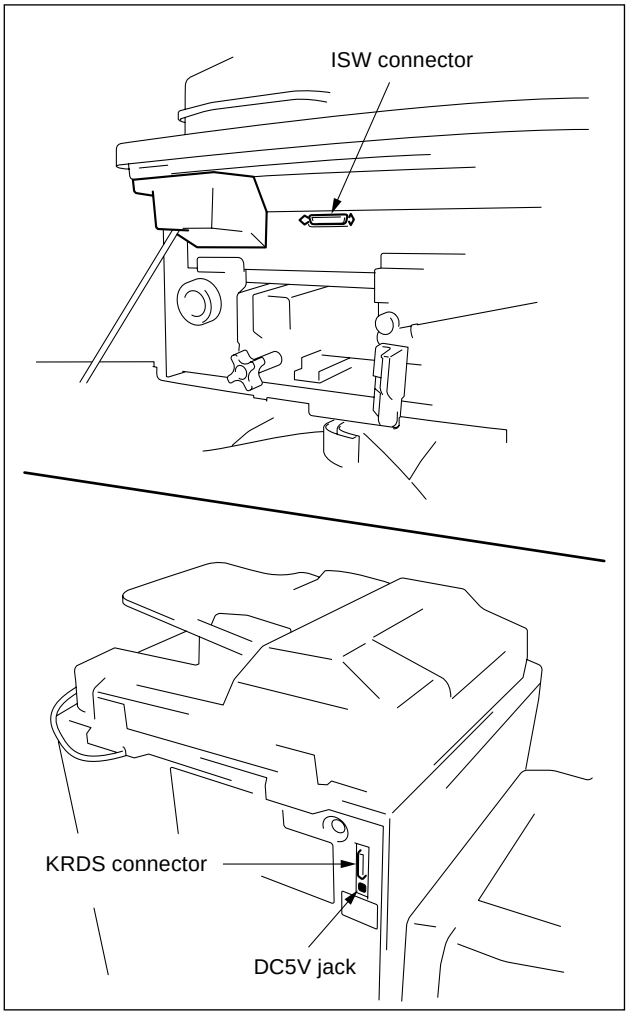
[2] Operating Method

1. ISW connector

The ISW connector is next to the total counter in the front door.

The connector (DC 5V jack) for the “ISW Tool” is below the KRDS connector (25-pin).

The cap or seal that covers each connector must be removed only when using it.



2. Preparing the copier for re-writing

Before operating the ISW, maintain the copier in ISW mode.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 11. ISW key.
3	**[ISW menu screen]** Select the ROM where the ROM data to be rewritten.
4	**[Program rewrite screen]** Pressing START key after START key is displayed, cause the machine to be data waiting condition.
5	Execute the operation according to the procedures specified in the "Konica ISW (In-System Writer) Service Handbook."

3. Display of operation to rewrite data

	System control (CB) program	Image control/RADF control/FNS control program
	Copier	Copier
Standby state	The START key is reversed (grey). "Reading data." Data LED (green) is lit.	The START key is reversed (grey). "Reading data." Data LED (green) is lit.
During data transmission	LCD screen is extinguished. Data LED (green) is blinking.	"Reading data." Data LED (green) is blinking.
During data rewriting	LCD screen is extinguished. Data LED (green) is blinking.	"Writing data." Data LED (green) is extinguished.
Rewriting finished	Return to 25 mode menu svreen.	"Finished normally." Data LED (green) is extinguished. Checksum display in message display area.

4. Error displays and response methods

a. System control program

	Copier	Cause	Response method
1	"Error generated during reading." Printer LED (red) lights.	Transmitted data other than system control data.	(1) Press the STOP/CLEAR button on the copier. (2) Disconnect the cable and then connect the cable again. (3) Start from the beginning for both the copier and the PC.
2	The LCD screen is extinguished. The error lamp (red) is lit.	Abnormality in cable connection during data transfer.	(1) Disconnect the cable and then connect the cable again. (2) Turn the SW1 (main power) and the SW2 (sub power) on the copier OFF and ON. Data lamp (green) lights. (3) Send the system control program once again from the PC.

b. Image control/RADF control/FNS control program

	Copier	Cause	Response method
1	"Error generated during reading." Printer LED (red) lights.	Data for a different control program was sent.	(1) Press the STOP/CLEAR button on the copier. (2) Disconnect the cable and then connect the cable again. (3) Start from the beginning for both the copier and the PC.
2	"Error generated during writing." Printer LED (red) lights.	Abnormality in cable connection during data transfer.	(1) Disconnect the cable and then connect the cable again. (2) Press the STOP/CLEAR button on the copier. (3) Start from the beginning for both the copier and the PC.

5. Types and quantity of re-write ROM

When rewriting the copier flash ROM data using the “ISW Tool” rewriting EPROM must be prepared.

The following table lists rewriting EPROM prepared for this machine.

Caution: Quantity of the rewriting EPROM and transfer file size are subject to change without previous notice.

Target control program	Quantity of ROM	ISW Trns file size (. bin file)
System control	17	Approx. 7.5 MB
Image control	2	Approx. 0.6 MB
RADF control	1	Approx. 0.1 MB
FNS control	1	Approx. 0.2 MB

6. Re-write precautions using the “ISW Tool”

System control ROM re-write

The re-write operation must be performed to divide the EPROM of the system control ROM into two groups, because of its number of “EPROM” is more tham 12. The timing (first time data transfer end timing) for the second time the re-write operations is performed is as follows.

The data LED (green) of the operation part changes from flashing to lighting.
The remaining EPROM is transferred to the “ISW Tool” and the ROM data is transferred.
The LCD goes off during data transfer.
When data transfer is ended, the 25 mode menu screen is displayed.
If an error occurs in the second ROM data transfer, perform the operation again from the beginning (first time).

7. Data transfer error

The Print LED (amber) lights if a transfer error occurs. If an error occurs, refer to the section “Error handling” in the separate “ISW Service Handbook” and perform the appropriate countermeasures. After the countermeasures are completed, perform the re-write operation again from the beginning.

KRDS

KRDS

[1] Specifications

1. Type: Overall control board built-in type.
2. KRDS (Overall control board) Interface between modem
   - RS-232C Compatible
   - Baud Rate: Default ; 38.4 kbps
3. Basic Functions

   Auto trouble notification

   Operation count auto acquisition

   Remote control (machine adjustment data, rewriting of the counter limit, etc.)

   Notification of frequent JAM occurrence

   Replenish toner notification

   Repair and other call buttons

[2] KRDS Setting

This function selects whether to use KRDS.

KRDS allows the copy machine to call up the host computer periodically and also when there is an abnormality. Also data in the copier can be changed from the host computer.
KRDS can execute the above functions for the following data:

a. Data on the copier's status such as total and PM count.
b. Data on the frequency of the partial copier such as RADF paper feed count.
c. Data on the copier's error status such as SC (F) /JAM occurrence code and count.
d. Data on the various adjustments

To use KRDS, set up as follows:

1. Initialize KRDS memory.
2. Set the type of modem and line.
3. Enter host password.
4. Set phone number.

KRDS setting menu

1. Calling time set
2. Host password set
3. KRDS TEL No. setting
4. KRDS software SW set
5. KRDS setup calling

[3] KRDS Set Up

1. KRDS set up item

KRDS set up procedure

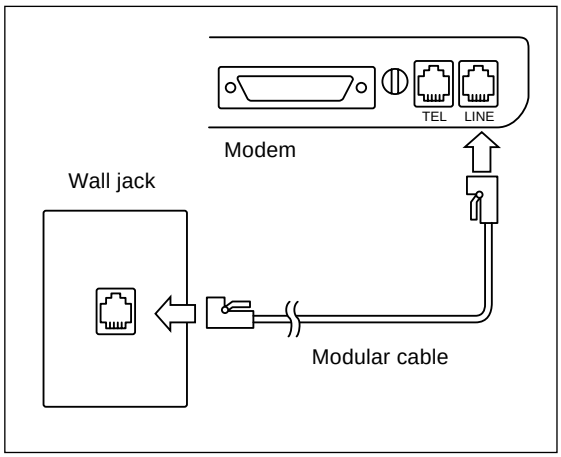
Step	Operation procedure
1	Turn off the modem and connect to the copier using a modem cable (RS-232C, 25P-25P straight cable) and wall jack using a modular cable to the modem.
2	Setting the KRDS connection recognition (25 mode to 1. Software SW) Set copier software DIPSW 12-6 (KRDS connection recognition) to “1”.
3	Initialize KRDS memory. (47 mode to 1 5 P 9 8 P to Start button ON)
4	Set KRDS software SW. (25 mode to 10.KRDS setting to 4. KRDS software SW set (Select type of modem and dial mode)) Select the type of modem from the bit pattern 0 to 6 of the KRDS software SW No.1 and dial mode from the bit pattern 7.
5	Host password setting. (25 mode to 10.KRDS setting to 2. Host password set (Refer to *1 and *2)
6	KRDS phone number setting. (25 mode to 10.KRDS setting to 3. KRDS TEL No. setting (Refer to *3)
7	Turn off the SW1 (main power) and SW2 (sub power) of the copier.
8	Turn on the power switch of the modem.
9	Turn on the SW1 (main power) of the copier.
10	Check the set up flag setting condition. (25 mode to 10.KRDS setting to 4. KRDS software SW set to check that the data on the switch No.33 and bit No.0 indicates “0” (not yet).)
11	Check the KRDS communication mode. (25 mode to 10.KRDS setting to 4. KRDS software SW set to Check the data in bit No. 2 of switch No. 38.) It should be set on “0” if communications are via a modem. If the setting is different, change the setting.
12	Preform KRDS set up calling. (25 mode to 10.KRDS setting to 5. KRDS Setup calling)
13	Press the Start key to start set up.
14	Check the finishing of set up. (25 mode to 10.KRDS setting to 4. KRDS software SW set to Completes if the data on the switch No.33 and bit No.0 indicates “1” (finished).)
15	Turn off the SW1 (main power) and SW2 (sub power) of the copier.

*1: Host password must be 5-digit.

*2: Host password 1 must be specified.

*3: For both the copier and the host side, copier phone number and host phone number 1 must be specified.

*4: Refer to the manual of the modem about specifications for connecting with the modular cable.



2. Setting the KRDS connection recognition

(1) Plug the power cord of the copier to the outlet. (When the SW1 (main power) and SW2 (sub power) of the copier remain off.)

(2) Turn on the SW1 when the SW2 remains off.

(3) Turn on the SW2 while pressing 2 and 5 of the copy quantity setting buttons simultaneously.

(4) Select the [1.Software SW] key on the 25 mode menu screen.

(5) Select the bit No.6 of the switch No.12, and then press the [ON] key.

[ON]: KRDS recognize

[OFF]: KRDS not recognized

Caution: If the copier software SW 12-6 (KRDS recognition) is not selected to "1", the menu of the KRDS can not be selected.

3. Initializing KRDS memory

(1) Turn off the SW2 when the SW1 remains on.

(2) Turn on the SW2 while holding down 4 and 7 of the copy quantity setting buttons simultaneously.

(3) Press the start print button after pressing the copy quantity setting button 1, 5 and P button, then 9, 8, finally P button again.

```
I/O check mode
< 15 - 098 >  IN: – – OUT: NOW
```

(4) "NOW" indication will be changed to "FIN" on the message display.

(5) Turn off the SW2.

4. Setting KRDS software SW

This function allows adjustment of the KRDS software switches.

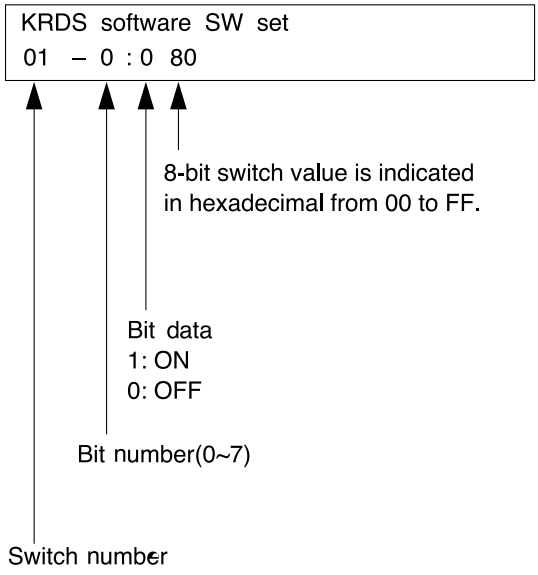
Caution: Adjust the software switch while checking the switch and bit number since the memory is rewritten every time the bit data (1 or 0) is changed.

Any bit data that has been incorrectly changed must be returned to the original data.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [10.KRDS setting] key.
3	**[KRDS setting screen]** Press the [4. KRDS software SW set] key.
4	**[KRDS software SW set screen]** Use the [▲] or [▼] keys to set the switch number. (Note 1)
5	Use the [▲] or [▼] keys to set the bit number. (Note 1)
6	Press the [ON] or [OFF] key to set the bit data.
7	Press the [RETURN] key to end the setting.

Note 1: The bit of the switch is written in the non-volatile memory every time it is changed.

The numbers shown in the message area are defined as follows:



For each switch function, refer to "List of KRDS Software SWs".

5. Setting type of modem and line

(1) Using the switch No. 01, enter the modem and line data into the bits 0 to 7, referring to the following table.

<If telephone line type is "Pulse">

Bit No. / Modem intialization command	7	6	5	4	3	2	1	0	*
AT&FE0Q0V1X0S0=1&S0	0	0	0	0	0	0	0	1	01
AT&FE0Q0V1X0S0=1&S0&D2&C1	0	0	0	0	0	0	1	0	02
AT&FE0Q0V1X0S0=1&S0%E0	0	0	0	0	0	0	1	1	03
AT&FE0Q0V1X0S0=1&S0&D2	0	0	0	0	0	1	0	0	04
AT&FE0Q0V1X0S0=1&S0&M5	0	0	0	0	0	1	0	1	05
AT&FE0Q0V1X0S0=1	0	0	0	0	0	1	1	0	06
AT&FE0Q0V1X0S0=1&S0\N5	0	0	0	0	0	1	1	1	07

<If telephone line type is "Tone">

Bit No. / Modem intialization command	7	6	5	4	3	2	1	0	*
AT&FE0Q0V1X0S0=1&S0	1	0	0	0	0	0	0	1	81
AT&FE0Q0V1X0S0=1&S0&D2&C1	1	0	0	0	0	0	1	0	82
AT&FE0Q0V1X0S0=1&S0%E0	1	0	0	0	0	0	1	1	83
AT&FE0Q0V1X0S0=1&S0&D2	1	0	0	0	0	1	0	0	84
AT&FE0Q0V1X0S0=1&S0&M5	1	0	0	0	0	1	0	1	85
AT&FE0Q0V1X0S0=1	1	0	0	0	0	1	1	0	86
AT&FE0Q0V1X0S0=1&S0\N5	1	0	0	0	0	1	1	1	87

Example:

If the initialization command for the modem you are using is AT&FE0Q0V1X0S0=1&S0 and you have a pulse-dial telephone line, enter the data for bits 7 to 0 as 00000001:

In hexadecimal <∗>, the value is expressed as 01. Be sure to verify with the above charts whether or not the hexadecimal <∗> output corresponds with the model being used.

Reference:

This machine has a telephone (modem) line type automatic recognition setting function.

KRDS Software SW:

Switch No.38 and bit No.0

Data 0: off (manual setting)

1: on (line type automatic recognition) (default)

As a result, if this switch is at "1", Bit No. 7 of Switch No. 1 can be either "0" or "1".

(2) List of KRDS Software SW

: Default value

No. byte	No. bit	Function	MSB 7	6	5	4	3	2	1	LSB 0	Description	Default value (Hexadecimal)
1	0-6	Select modem		0	0	0	0	0	0	0	No setting (No data is sent to modem.)	81
				0	0	0	0	0	0	1	AT&FE0Q0V1X0S0=1&S0	
				0	0	0	0	0	1	0	AT&FE0Q0V1X0S0=1&S0&D2&C1	
				0	0	0	0	0	1	1	AT&FE0Q0V1X0S0=1&S0%E0	
				0	0	0	0	0	0	0	AT&FE0Q0V1X0S0=1&S0&D2	
				0	0	0	0	0	0	1	AT&FE0Q0V1X0S0=1&S0&M5	
				0	0	0	0	1	1	0	AT&FE0Q0V1X0S0=1	
				0	0	0	0	1	1	1	AT&FE0Q0V1X0S0=1&S0\N5	
				1	1	1	1	1	1	1	Manual setting (3 to 24 byte data is sent to modem.)	
	7	Dial mode	0								Pulse dial	
			1								Tone dial	
2	0	Data character length										81
										1	8 bit (fixed)	
	1-2	Parity and stop bit						0	0		No parity, stop bit 1 (fixed)	
											Even number of parity, stop bit 1	
											Odd number of parity, stop bit 1	
											No parity, stop bit 2	
	3	Reserve					Don't care					
	4-7	Baud rate	0	0	1	1					1200 bps	
			0	1	0	0					2400 bps	
			0	1	0	1					4800 bps	
			0	1	1	0					9600 bps	
			0	1	1	1					19200 bps	
			1	0	0	0					38400 bps	
3	0	Local echo									No setting	57
										1	E0: Exist	
	1	Result code							0		No setting	
									1		Q0: Exist	
	2	Result code form						0			No setting	
		(displayed result)						1			V1: Word	
	3	Set DCD signal operation					0				No setting	
		(carrier detect)					1				&C1: ON only when the carrier is detected.	
	4-5	Set DSR signal operation			0	0					No setting	
					0	1					&S0: Keep ON	
					1	0					&S1: ON during online	
					1	1					&S2	

No.		Function	MSB	Bit pattern					LSB	Description	Default value
byte	bit		7	6	5	4	3	2	1	0		(Hexadecimal)
3	6	Check DSR signal		0							off	57
				1							on	
	7	Check DCD signal	0								off (fixed)	
			1								on	
4	0-1	Set DTR signal operation							0	0	No setting	10
									0	1	&D0	
									1	0	&D1	
									1	1	&D2	
	2-3	Speaker control					0	0			No setting	
							0	1			M0: Keep off	
							1	0			M1: ON until communication starts	
							1	1			M2	
	4-6	Display speed when		0	0	0					No setting	
		connection is completed		0	0	1					X0: No indication of communication speed	
		and dial/busy tone is		0	1	0					X1: Indication of communication speed	
		detected.		0	1	1					X2: Indication of communication speed; Detect dial tone	
				1	0	0					X3: Indication of communication speed; Detect busy tone	
				1	0	1					X4: Indication of communication speed; Detect dial and busy tone	
				1	1	0					non	
				1	1	1					non	
	7	Reset modem (This is set	0								No setting	
		prior to shipping.)	1								&F: This is set prior to shipping.	
5	0-7	Arbitrary command regist-										00
6	0-7	ration area 1 (ASCII data)										
7	0-7											
8	0-7	Arbitrary command regist-										
9	0-7	ration area 2 (ASCII data)										
10	0-7										Send ASCII data specified in this area to modem	
11	0-7	Arbitrary command regist-										
12	0-7	ration area 3 (ASCII data)										
13	0-7											
14	0-7	Arbitrary command regist-										
15	0-7	ration area 4										
16	0-7	Command free setting										
17	0	Set S register (bit 0 - 7)								0	No setting	01
		S0: Automatic receive ring count								1	S0=: Effective data	
	1	S6: Wait time from off hook							0		No setting	
		to dial start							1		S6=: Effective data	
	2	S7: Off hook limit timer						0			No setting	
								1			S7=: Effective data	

No.		Function	MSB	Bit pattern						LSB	Description	Default value
byte	bit		7	6	5	4	3	2	1	0		(Hexadecimal)
17	3	S8: Dial stop time (sec.)					0				No setting	01
							1				S8=: Effective data	
	4	S9: Carrier recognize time				0					No setting	
						1					S9=: Effective data	
	5	S10: Allowable carrier			0						No setting	
		stop time			1						S10=: Effective data	
	6	S11		0							No setting	
				1							S11=: Effective data	
	7	Reserve	Don't care									
18		S0 data (No. of times data was received automatically)	00 - FFH								01H (1)	01
19		S6 data (Wait time until dialing starts.)	00 - FFH								03H (3)	03
20		S7 data (Wait time until carrier detect)	00 - FFH								1EH (30)	1E
21		S8 data (Pause time)	00 - FFH								03H (3)	03
22		S9 data (Carrier detection time)	00 - FFH								06H (6)	06
23		S10 data (Carrier dis-connection detection time)	00 - FFH								0EH (14)	0E
24		S11 data	00 - FFH								5FH 95	5F
25		Timer 1 (Ring reception→ Connect reception)	00 - FFH								20H (32) x 1sec	20
26		Timer 2 (Dial call end → Connect reception)	00 - FFH								40H (64) x 1sec	40
27		Timer 3	00 - FFH								0AH (10) x 100ms	0A
28		Timer 4 (Line Connect → Send Start-up message request)	00 - FFH								20H (32) x 100ms	20
29		Timer 5 (Opposite Party Signal answer wait time)	00 - FFH								1EH (30) x 1sec	1E
30		Retry data; Timer 6 (Initialization OK →Dial call)	00 - FFH								FFH (255) x 5ms	FF
31	0	Call when SC error occurs								0	disable	99
										1	enable	
	1	Call specify date							0		disable	
									1		enable	
	2	Call parts replace date						0			disable	
								1			enable	
	3	Call drum replace date					0				disable	
							1				enable	
	4	Call regular service date				0					disable	
						1					enable	
	5				Don't care							

No. byte	No. bit	Function	MSB 7	6	5	4	3	2	1	LSB 0	Description	Default value (Hexadecimal)
31	6	Call regular transmit date		0							disable	99
				1							enable	
	7	Select regular transmit	0								time	
		(Time and count)	1								counter	
32	0	Call when optional configu-								0	disable	00
		ration is changed								1	enable	
	1	Report of toner							0		disable	
		replenishment							1		enable	
	2	Report of JAM occur						0			disable	
		frequently						1			enable	
	3-7	Reserve	Don't care									
33	0	Set up flag	Don't care									0A
										0	not yet	
										1	finished	
	1-2	Radial interval						0	0		1 min.	
								0	1		3 min.	
								1	0		5 min.	
								1	1		7 min.	
	3-4	Reserve				Don't care						
	5-6	Reserve		Don't care								
	7	Line feed control	0								CR/LF: LF exist	
		(when initializing modem)	1								CR: No LF	
34	0-1	Call JAM date (main body)							0	0	Copy quantity: level 1	55
		Valid copy quantity							0	1	Copy quantity: level 2	
									1	0	Copy quantity: level 3	
									1	1	Copy quantity: level 4	
	2-3	Call ADF JAM date					0	0			Original feed quantity: level 1	
		Valid original feed quantity					0	1			Original feed quantity: level 2	
							1	0			Original feed quantity: level 3	
							1	1			Original feed quantity: level 4	
	4-5	Call JAM date			0	0					MCBJ: level 1	
		MCBJ setting			0	1					MCBJ: level 2	
					1	0					MCBJ: level 3	
					1	1					MCBJ: level 4	
	6-7	Call JAM date	0	0							MOBJ: level 1	
		MOBJ setting	0	1							MOBJ: level 2	
			1	0							MOBJ: level 3	
			1	1							MOBJ: level 4	
35		Reserve										0A
36		Reserve										00
37		Reserve										00

No. byte	No. bit	Function	MSB 7	6	5	4	3	2	1	LSB 0	Description	Default value (Hexadecimal)
38	0	Line type automatic recognition								0	off	88
										1	on	
	1	MSAD connection							0		not connect	
									1		connect	
	2	KRDS communication mode						0			DATA (Using a modem)	
								1			FAX	
	3-5	Reserve			Don't care							
	6	PM limit data length		0							Upper 2-digit fixed (for host)	
				1							All 6-digit (for host)	
	7	Regular transmit communication Sequence control	0								Call back communication	
			1								No call back communication	
39	0-1	Reserve							Don't care			00
	2	RS-232 line error K01_XX (Note 1)						0			copy enable	
								1			copy disable	
	3	Modem AT command error K02_XX (Note 1)					0				copy enable	
							1				copy disable	
	4	Reserve				Don't care						
	5	Force copy stop (at host side) (Note 2)			0						disable	
					1						enable	
	6-7	Reserve	Don't care									
40	0	Force copy stop (Note 2) (at terminal equipment side)								0	disable	00
										1	enable	
	1	Jam history data clear							0		disable	
									1		enable	
	2-5	Reserve		Don't care								
	6	User data access setting (local)		0							Prohibition	
				1							Permission	
	7	Resarve	0									

Note 1: For details of errors, refer to [7] Error code table.

Note 2: Copy prohibition: If SWs 39-5 and 40-0 are both set to 1, then it becomes impossible to copy.

6. Setting host password

This function sets the host password.

(1) Screen selection
Select the [10.KRDS setting] key in the 25 mode menu screen to display the KRDS setting menu screen as an initial screen.
Then select the [2. Host password set] key to display the host password setting screen.

(2) Setting method
a. Three patterns can be used to set KRDS host password. The entry screen, screen contents and setting method for each pattern are all the same. Each message, however, is different.
(There are only 2 patterns for a usable password.)
b. Press the [NEXT] or [BACK] key to 2change the screen.
c. Enter the host password, 5-digit number or alphabet, with the numeric keys on the screen and press the [SET] key.
d. The firstly entered number or alphabet will be shifted to the left end.
e. After inputting the password, it the [NEXT], [BACK] or [RETURN] key is pressed before pressing the [SET] key, the data that has been entered is canceled.
f. Press the [SET] key, and then press the [RETURN] key to set the entered password. The screen will return to the KRDS setting menu screen.

* As the host password is set to “00000” in factory setting, ensure to change it to the password which was set by the KRDS host application for communication.
Confirm the password of host side with KRDS host application administrator.

* Note that the host password setting (Host 1) must be performed.

* See the [4] Calling time set menu mode (Arbitrary) concerning “Host 2” settings.

* Do not care “Host 3.”

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [10.KRDS setting] key.
3	**[KRDS setting screen]** Press the [2. Host password set] key.
4	**[Host password setting screen]** Enter password consisting of number and alphabet.
5	Press the [NEXT] or [BACK] key to change the screen, then enter password (up to 2 patterns).
6	Press the [SET] key.
7	Press the [RETURN] key to end the setting.

7. Setting the KRDS telephone number

This function sets copier for KRDS and host telephone number.

(1) Screen selection
Select the [10.KRDS setting] key in the 25 mode menu screen to display the KRDS setting screen as an initial screen.

Then select the [3. KRDS TEL No. setting] key to display the KRDS TEL No. setting screen.

(2) Setting method

a. Three patterns can be used to set KRDS phone number. The entry screen, screen contents and setting method for each pattern are all the same. Each screen, however, is different.

b. Press the [NEXT] or [BACK] key to change the screen.

c. Enter the telephone number, 15-digit or less number, with the numeric keys on the screen and press the [SET] key.

d. The entered number is displayed in the cursor section displayed in the line 2 of the message display area. The cursor shifts from left to right according to the entered.

If more than 15 digit is entered, the number of the 15 digit is rewritten.

e. To reenter the telephone number, press the Stop/ clear button to clear the data then enter the correct number.

f. If you wish to change the number of an arbitrary position, press the [<<] or [>>] key to move the cursor to the desired position and reenter.

g. No data has been set for the second row of the message area prior to shipping.

h. The keys except the numeric keys are defined as follows:

[,] Pause:

Wait temporarily for self-dial feed. (2-3 sec.)

[W] Wait:

Wait for dial tone such as asynchronous, etc. (excluding sound guidance).

[T] Tone Dial:

Indicate tone dial after this symbol

[P] Pulse Dial:

Indicate pulse dial after this symbol

[−] Symbol to divide numbers:

(This symbol is ignored when dialing.)

[.], [#], [*]:

Use these keys as required such extension number.

i. After inputting the password, it the [NEXT], [BACK] or [RETURN] key is pressed before pressing the [SET] key, the data that has been entered is canceled.

j. Press the [SET] key, and then press the [RETURN] key to set the entered number. The screen will return to the KRDS setting menu screen.

- Note that the telephone number setting (copier) and telephone number setting (Host1) must be performed.
- Refer to [5] Calling time set menu mode (Arbitrary) for the (Host 2).
- Do not care "Host 3."

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [10.KRDS setting] key.
3	**[KRDS setting screen]** Press the [3. KRDS TEL No. setting] key.
4	**[KRDS TEL No. setting screen]** Enter telephone number (15-digit or less) consisting of number and alphabet with numeric keys.
5	Press the [NEXT] or [BACK] key to change the screen, then telephone number (up to 3 patterns).
6	Press the [SET] key.
7	Press the [RETURN] key to end the setting.

8. Calling KRDS set up

<Auto set up>

In the host call setting, call the designated host computer in the set date and time, and transmit each data of the copier. Refer to the separate KRDS Host Application Manual for details of the data being handled.

(1) Screen selection

Select the [10.KRDS setting] in the 25 mode menu screen to display the KRDS setting screen.

Then select the [4. KRDS software SW set] to display the KRDS software SW set screen.

Check that the software SW 33-0 is set to “0”. After checking, press the [RETURN] key to return to the KRDS setting menu screen.

On the KRDS setting screen, select the [5. KRDS Setup calling] to display the KRDS setup calling screen.

Caution: If the KRDS software SW 33-0 (Set up flag) is not selected to “0” (not yet). The KRDS setup calling screen can not be selected.

(2) Setting method

a. Press the [Start] key in the screen.

(a) Communication message

Calling the host for setup Communicating

Caution: Do not turn OFF the power during communication.

(b) Completion message

Calling the host for setup Communication completed

b. Turn off the power if no completion message is displayed in ten minutes.

Check that the host computer starting up correct, host telephone number, cable connection, etc. then open to calling the host for setup screen again to press the [Start] key.

c. Turn off the power to end the operation.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [10.KRDS setting] key.
3	**[KRDS setting screen]** Press the [4. KRDS software SW set] key.
4	**[KRDS software SW set screen]** Use the [▲], [▼] key to select the switch number to “33” and bit number “0”.
5	Check that bit data indicates “0”. If not, set to “0” to press the [OFF] key.
6	Press the [RETURN] key to return to the KRDS setting screen.
7	**[KRDS setting screen]** Press the [5. KRDS Setup calling] key.
8	**[KRDS Setup calling screen]** Press the [Start] key. Check the message on the screen.
9	Turn off the power to end the operation.

• How to confirm the completion of setup

Confirm the data at bit No. 0 of address 33 in reference to "4. Setting KRDS software SW."

If "0", setup is not completed.
If "1", setup is completed.

<Manual set up>

This copier machine can be set up manually, other than the automatical setup as explained above. (The setup is effective when both the copier and the host have completed the setup action.)

• Operation for the copier machine

1. Switch on the power of modem.
2. Set the address No. 33 as referring to "4. Setting KRDS software SW."
3. Change the data of bit No. 0 from 0 to 1.
   0: Set up not completed
   1: Set up completed
4. Establish the changed data by pressing the copy button.
5. Switch off the power of main body.

• Operation for the host computer

For the operation of the host compouter, refer to the KRDS Host Application Administrator's Manual.

[4] Calling Time Set Menu Mode (Arbitrary)

Select the [10.KRDS setting] key in the 25 mode menu screen to display the KRDS setting screen as an initial screen.

Then select the [1.Calling time set] key to display the calling time set screen.

Calling time set menu

1. Calling mode-1
2. Calling mode-2
3. Calling mode-3

Press the [RETURN] key to exit the calling time set screen and return to the KRDS setting screen.

* This host calling setting calls everything to the "Host 2". Therefore, it is necessary first to set the "Host 2" telephone No. and host password.

1. Setting calling time setting mode

This function sets designated date calling.

(1) Screen selection
Select the [1.Calling mode-1] (Setting designated date calling setting) in the calling time set screen to display the calling mode-1 (designated date calling) screen.

Press the [RETURN] key to exit the calling mode-1 (designed date calling) screen and return to the calling time set screen.

(2) Entering method

a. Enter year, month, day and time using the numeric keys.

b. The cursor that indicates entering position will be appeared in the message indication area at line 2.

c. Using the [<<], [>>] key and move the cursor to desired position.

d. If reenter the entered data, press the Stop/clear button to clear the entered data then enter the data again.

e. Enter year, month, day and time using the numeric keys, then press the [SET] key.

f. Enter year, month, day and time as follows.

- The year is entered by inputting 4-digit in the Christian era.
- The month and day are entered by inputting 2-digit number. (Example: 1 is entered as 01.)
- The time is entered using 24 hour clock.

  (Example: 1:00p.m. is entered as 13.)
- The minute is entered by inputting 2-digit number. (Example: 1 is entered as 01.)
- Example:

  at 1:00 p.m. of January 15, 1998 to

  1998/01/15 13:00

g. Press the [SET] key every time data for one item is entered and check the entered data.

h. The screen will return to the calling time setting menu screen if the [RETURN] key is pressed without pressing the [SET] key. In this case, no entered data will be changed.

i. Press the SET key, and then the RETURN key to end setting. The screen will return to the calling time set menu screen.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting key.
3	**[KRDS setting screen]** Press the 1.Calling time set key.
4	**[Calling time set screen]** Use the 1.Calling mode-1 (Setting designated date calling setting).
5	**[Calling mode-1 (Designed date calling) screen]** Enter year, month and day using the numeric key on the screen, then press the << , >> key to move the cursor to entering position of time.
6	Enter time and minute using the numeric keys on the screen, then press the SET key.
7	Press the RETURN to end the setting.

2. Setting regular date & time calling

The copier will call the host at the regular time specified.

(1) Screen selection

Select the 2. Calling mode-2 (regular data & time calling setting) in the calling time set menu screen to display the calling mode-2 (regular data & time calling) setting screen.

Press the RETURN key to exit the calling mode-2 (regular data & time calling) setting screen and return to the calling time set menu screen.

(2) Mode selecting method

a. Select and press the desired mode in the monthly, weekly, daily keys.

There are three mode type (month, week, day) that can be set.

b. The current selected mode is high lighted according to the mode key.

At this time, the setting contents will be appeared in the message indication area at line 2.

(3) Mode setting method
Perform the operation in each mode as follows:

a. Monthly mode

(a) Using the numeric keys, enter the day, hour and minute.

(b) Press the SET key to enter the input data.

b. If you wish to change the number of an arbitrary position, press the << or >> key to move the cursor to the desired position and reenter.

c. If reenter the entered data, press the Stop/clear button to clear the entered data then enter the data again.

d. Weekly mode

(a) Using the numeric keys, enter the day of the week, hour and minute.

(b) The day of the week is entered using the numeric keys according to the following definitions.

1: Monday 2: Tuesday 3: Wednesday

4: Thursday 5: Friday 6: Saturday

7: Sunday

(c) Press the SET key to enter the input data.

e. Daily mode

(a) Using the numeric keys, enter the hour and minute.

(b) Press the SET key to enter the input data.

f. Common operation

(a) The screen will return to the calling time set menu screen if the RETURN key is pressed without pressing the SET key. In this case, no entered data will be changed.

(b) Press the SET key, and then the RETURN key to end setting. The screen will return to calling time set menu screen.

(c) Enter the number with the numeric keys as follows:

- The month and day are entered by inputting 2-digit number. (Example: 1 is entered as 01.)
- The time is entered using 24 hour clock.

  (Example: 1:00p.m. is entered as 13.)
- The time is entered using 24 hour clock. (Example: 1:00p.m. is entered as 13.)
- Example:

  Monthly mode: 10 17:10

  Weekly mode: day 17:10

  Daily mode: 17:10

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting key.
3	**[KRDS setting screen]** Press the 1.Calling time set key.
4	**[Calling time set screen]** Use the 2.Calling mode-2 (regular time calling setting).
5	**[Calling mode-2 (regular time calling) screen]** Press the any key in monthly, weekly, daily keys.
6	Using the numeric keys on the screen, enter the day, hour and minute. (Item that can be input differs from depend on the mode.)
7	Press the SET key.
8	Press the RETURN to end the setting.

3. Setting regular count calling

The copier will call the host at the regular count specified.

(1) Screen selection
Select the [3. Calling mode-3] (regular count) in the calling time set screen to display the Calling mode-3 (regular count call) screen.

Press the [RETURN] key to exit the Calling mode-3 (Regular count call) screen and return to the calling time set screen.

(2) Setting method
a. Using the numeric keys on the screen, enter 6-digit number, regular count value, then press the [SET] key.
b. To reenter the entered data, press the stop/clear button to clear the entered data then enter the data again.
c. The entered numerical value is entered from the number of 4 digit. The number is displayed while shifting from right to left.
d. The screen will return to the calling time set menu screen if the [RETURN] key is pressed without pressing the [SET] key. In this case, no entered data will be changed.
e. Press the [SET] key then the [RETURN] key to end the setting. The screen will return to the calling time set menu screen.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the [10.KRDS setting] key.
3	**[KRDS setting screen]** Press the [1.Calling time set] key.
4	**[Calling time set screen]** Use the [3.Calling mode-3] (regular count).
5	**[Calling mode-3 (regular count call) screen]** Using the numeric keys on the screen, enter number, regular count value, then press the [SET] key.
6	Press the [RETURN] to end the setting.

[5] A Point to Notice for Operation

Be sure to turn OFF and ON the main power of the copier if the modem power is turned OFF and ON with the main power OFF.

Reason: To initialize the modem.
(When the KRDS circuit is powered, it automatically initialized the modem following the modem power ON and OFF operations.
When the main power of the copier is OFF, however, the KRDS circuit is not powered and does not initialize the modem after the modem power ON and OFF operations.
Some types of modem cannot start communication with KRDS unless they are initialized by the KRDS.)

[6] ASCII Code Table

ASCII is 1 byte code specified by ANSI.

It enables indication of control code, alphabet and number.

character	binary	hexa-decimal	character	binary	hexa-decimal	character	binary	hexa-decimal	character	binary	hexa-decimal
	0000 0000	0		0010 0000	20	@	0100 0000	40	‘	0110 0000	60
SH	0000 0001	1	!	0010 0001	21	A	0100 0001	41	a	0110 0001	61
SX	0000 0010	2	"	0010 0010	22	B	0100 0010	42	b	0110 0010	62
EX	0000 0011	3	#	0010 0011	23	C	0100 0011	43	c	0110 0011	63
ET	0000 0100	4	$	0010 0100	24	D	0100 0100	44	d	0110 0100	64
EQ	0000 0101	5	%	0010 0101	25	E	0100 0101	45	e	0110 0101	65
AK	0000 0110	6	&	0010 0110	26	F	0100 0110	46	f	0110 0110	66
BL	0000 0111	7	'	0010 0111	27	G	0100 0111	47	g	0110 0111	67
BS	0000 1000	8	(	0010 1000	28	H	0100 1000	48	h	0110 1000	68
HT	0000 1001	9	)	0010 1001	29	I	0100 1001	49	i	0110 1001	69
LF	0000 1010	A	*	0010 1010	2A	J	0100 1010	4A	j	0110 1010	6A
HM	0000 1011	B	+	0010 1011	2B	K	0100 1011	4B	k	0110 1011	6B
CL	0000 1100	C	,	0010 1100	2C	L	0100 1100	4C	l	0110 1100	6C
CR	0000 1101	D	-	0010 1101	2D	M	0100 1101	4D	m	0110 1101	6D
S0	0000 1110	E	.	0010 1110	2E	N	0100 1110	4E	n	0110 1110	6E
S1	0000 1111	F	/	0010 1111	2F	O	0100 1111	4F	o	0110 1111	6F
DE	0001 0000	10	0	0011 0000	30	O	0101 0000	50	p	0111 0000	70
D1	0001 0001	11	1	0011 0001	31	Q	0101 0001	51	q	0111 0001	71
D2	0001 0010	12	2	0011 0010	32	R	0101 0010	52	r	0111 0010	72
D3	0001 0011	13	3	0011 0011	33	S	0101 0011	53	s	0111 0011	73
D4	0001 0100	14	4	0011 0100	34	T	0101 0100	54	t	0111 0100	74
NK	0001 0101	15	5	0011 0101	35	U	0101 0101	55	u	0111 0101	75
SN	0001 0110	16	6	0011 0110	36	V	0101 0110	56	v	0111 0110	76
EB	0001 0111	17	7	0011 0111	37	W	0101 0111	57	w	0111 0111	77
CN	0001 1000	18	8	0011 1000	38	X	0101 1000	58	x	0111 1000	78
EM	0001 1001	19	9	0011 1001	39	Y	0101 1001	59	y	0111 1001	79
SB	0001 1010	1A	:	0011 1010	3A	Z	0101 1010	5A	z	0111 1010	7A
EC	0001 1011	1B	;	0011 1011	3B	[	0101 1011	5B	{	0111 1011	7B
→	0001 1100	1C	<	0011 1100	3C	¥	0101 1100	5C	¦	0111 1100	7C
←	0001 1101	1D	=	0011 1101	3D	]	0101 1101	5D	}	0111 1101	7D
↑	0001 1110	1E	>	0011 1110	3E	^	0101 1110	5E	~	0111 1110	7E
↓	0001 1111	1F	?	0011 1111	3F	_	0101 1111	5F		0111 1111	7F

[7] Error Code Table

Error code	Contents	Countermeasure
K00_00	Connection NG.	Redial, repeat reception standby.
K00_01	No response from other party. (No detection of start text from host after establishing connection.)	Redial, repeat reception standby.
K00_02	Because copying is taking place, it is impossible to write to the non-volatile memory and the line is cut.	Temporarily stop copying.
K00_03	Password does not match.	Check password.
K00_04	Serial number does not match.	Check serial number.
K00_05	Syntactical error.	Redial, repeat reception standby.
K00_06	Write-in indication on an item for which write-in is impossible.	Re-operation on host side.
K00_07	Unread item error.	Re-operation on host side.
K00_08	Signal reception time-out after detection other party response.	Redial, repeat reception standby.
K00_09	Serial number registration completed.	Check serial number.
K00_10	Communications error due to generation of carrier OFF.	Redial, repeat reception standby.
K00_11	Dial tone is not detected within 5 seconds after setting of x2 and x4 commands.	Check connection of telephone line.
K00_12	Busy signal detected.	Redial.
K00_13	No tone detected for 5 seconds after input of @ command.	Redial, repeat reception standby.
K01_00	DTR went to OFF or in OFF state.	Check modem power source. Check RS-232C cable connection.
K01_01	Cannot open RS-232C.	Turn power on copier OFF and ON.
K01_02	Cannot close RS-232C.	Turn power on copier OFF and ON.
K01_03	Response time-out from RS-232C task.	Check modem power source. Check RS-232C cable connection.
K02_00	AT command error.	Turn power on copier OFF and ON. Possibility of modem malfunction or software bug.
K02_01	Initializing NG (MODEM). Example: Modem initializing command no good.	Check modem power source. Check RS-232C cable connection.

4

SERVICE

Main Precautions for Maintenance

1. Points to be confirmed before maintenance
   Before starting maintenance, ask a user and collect information about troubles occurred on the machine before the maintenance and the conditions of the machine to grasp key points for the maintenance.
2. Copy sample
   Be sure to make copy samples at the start and the end of maintenance for checking images.
3. Drum
   1) Never expose the drum to the sunlight. Be also careful not to expose a drum to indoor light as far as possible.
      When a drum unit or a drum is out of the machine, never fail to cover it with a drum cover.
   2) When replacing a drum or a cleaning blade, refer to item of mounting/dismounting of a cleaning blade for doing a replacement work.
4. After replacing the drum or the developer, refer to the list of adjustment items, and carry out the necessary adjustments.
5. When maintenance is completed, be sure to reset the PM counter (25 mode). Incidentally, a development counter is reset automatically in the course of L detection adjustment.
6. When replacing a toner bottle, wait until the toner supply message on the operation panel displays before the replacement.

⚠**Caution: Turn the main switch off and pull out the power plug without fail before the work of maintenance.**

SERVICE SCHEDULE

[1] Service Schedule

Classification	Number of copies (unit: 10,000) / Service item (cycles)	Guarantee period (5 years or 1,200,000 copies)	Service times
Main body	Maintenance (Every 100,000 copies or prints)	● ● ● ● ● ● ● ● ● ●	11 times
	Periodic check (I) (Every 200,000 copies or prints)	● ● ● ● ● ● ●	5 times
	Periodic check (II) (Every 400,000 copies or prints)	● ●	2 times
	Periodic check (III) (Every 800,000 copies or prints)	●	1 time
RADF (DF-315)	Maintenance (Every 100,000 copies or prints)	● ● ● ● ● ● ● ● ● ●	11 times
	Periodic check (Every 200,000 copies or prints)	● ● ● ● ● ● ●	5 times
DB-208A (1 tray)	Maintenance (Every 100,000 copies or prints)	● ● ● ● ● ● ● ● ● ●	11 times
DB-208 (3 trays)	Maintenance (Every 100,000 copies or prints)	● ● ● ● ● ● ● ● ● ●	11 times
	Periodic check (Every 200,000 copies or prints)	● ● ● ● ● ● ●	5 times
DB-608 (1 tray + LCT)	Maintenance (Every 100,000 copies or prints)	● ● ● ● ● ● ● ● ● ●	11 times
	Periodic check (Every 200,000 copies or prints)	● ● ● ● ● ● ●	5 times
FNS (FS-109)	Maintenance (Every 100,000 copies or prints)	● ● ● ● ● ● ● ● ● ●	11 times
	Periodic check (Every 300,000 copies or prints)	● ● ●	3 times

[2] Maintenance Items

1. Main body (Every 100,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Preparation	(1) Image check		●				
		(2) External parts		●				
		(3) Check of adjustment value, Dmax and correction error		●				
2	Fixing unit	(1) Fixing unit removing						
		(2) Upper cover removing						
3	Drum unit	(1) Drum unit removing						
		(2) Drum unit check		●				
		(3) Charging corona unit removing						
		(4) Charging control plate 55GA2507*				◎		
		(5) Charging wire 55FA2501*				◎		
		(6) Charging corona unit cleaning (Back plate and its around, and PCL)	●					Drum cleaner / Waste rag / Blower brush
		(7) Cleaner mount assembly 55GA-252*				◎		
		(8) Charging wire cleaning block (C) 55GA-253*				◎		
		(9) Charging wire cleaning block (D) 55GA-255*				◎		
		(10) Developing unit removing						
		(11) Drum removing						
		(12) Drum cartridge/Developing unit bottom plate/Toner control sensor/Separating claw/Developing bias intercept/ Clean with each	●					Blower brush / Cleaning pad / Drum cleaner (Drum cleaner: only when using the toner control sensor cleaning.)
		(13) Cleaning blade 55GA5601*				◎		
		(14) Drum installing						
		(15) Charging corona unit installing						
4	Developing unit	(1) Developing unit lower rib (inside & outside)/upper cover (back side of the urethane sheet)	●					Waste rag / Blower brush (When cleaning the back side of the urethane sheet, the back side should be cleaned, particularly the urethane sheet section.)
		(2) Developing unit installation						
		(3) Toner supply opening and its around	●					Waste rag
5	Write unit	(1) Mirror	●					Cleanig pad
		(2) Dust-proof glass	●					Cleanig pad
6	Transfer/ Separation corona unit	(1) Transfer/Separation corona unit cleaning (Front and rear block/Guide rail/Separating bridge/Entrance guide plate/Back plate) and include removing and installing	●					Blower brush / Cleaning pad
		(2) Discharging wire 55GA2607*				◎		

Remarks: (●) and (◎) indicate the following in the classification of implementation.

(●) indicates items that must always be implemented.

(◎) indicates items for checking whether they have reached the substantial resistance count listed in the fixed replacement part list and judge whether to replace them or not.

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
7	Machine inside	(1) Conveyance unit 55GA4501*	●					Drum cleaner / Cleaning pad
		(2) Conveyance guide plate 55GA4502*	●					Drum cleaner / Cleaning pad
		(3) Conveyance belt 55GA4506*	●					Drum cleaner / Cleaning pad
8	2nd paper feed unit	(1) Registration guide plate (B) assembly 55GA-431*	●					Drum cleaner / Cleaning pad
		(2) Registration unit 55GA4301*	●					Drum cleaner / Cleaning pad
		(3) Registration roller (lower) 55GA4311*	●					Drum cleaner / Cleaning pad
		(4) Registration roller (upper) 55GA4312*	●					Drum cleaner / Cleaning pad
		(5) Registration paper feed roller 55GA4322*	●					Drum cleaner / Cleaning pad
		(6) Paper conveyance roller 55GA4323*	●					Drum cleaner / Cleaning pad
		(7) Photo sensors 55208551*	●					Blower brush
		(8) Paper feed door 55GA-408*	●					Drum cleaner / Cleaning pad
9	By-pass unit	(1) By-pass tray 55GA-428*	●					Drum cleaner / Cleaning pad
		(2) Double feed prevention roller 54004056*	● ●					Drum cleaner / Cleaning pad
		(3) Separation roller 54004056*	●					Drum cleaner / Cleaning pad
		(4) Paper feed roller 25BA4032*	●					Drum cleaner / Cleaning pad
		(5) Double feed prevention plate 54004235*	●					Drum cleaner / Cleaning pad
		(6) Photo sensor/2 55WA8552*	●					Blower brush
		(7) Photo sensor 55208551*	●					Blower brush
10	Paper feed unit	(1) Paper feed unit removing						
		(2) Paper feed roller 25BA4032*	●					Drum cleaner / Cleaning pad
		(3) Separation roller 54004056*	●					Drum cleaner / Cleaning pad
		(4) Double feed prevention roller 54004056*	●					Drum cleaner / Cleaning pad
		(5) Gears			●			Plus guard No. 2
		(6) Paper feed unit installing						
11	ADU	(1) Registration roller (lower)	●					Drum cleaner / Cleaning pad
		(2) Conveyance roller (A) 55HA5025*	●					Drum cleaner / Cleaning pad
		(3) Conveyance roller (B) 55HA5026*	●					Drum cleaner / Cleaning pad
		(4) Conveyance roller (C) 55HA5087*	●					Drum cleaner / Cleaning pad
		(5) Photo sensor 25AA8551*	●					Blower brush
		(6) Photo sensor 55208551*	●					Blower brush
12	Reversal paper exit section	(1) Paper exit reversal roller	●					Drum cleaner / Cleaning pad
		(2) Reversal roller 40BA4825*	●					Drum cleaner / Cleaning pad
		(3) Conveyance roller 55GA4806*	●					Drum cleaner / Cleaning pad
		(4) Paper exit roller 55GA4805*	●					Drum cleaner / Cleaning pad
		(5) Photo sensors 25AA8552*	●					Blower brush
13	Reading section	(1) Original glass 55YA6150*	●					Drum cleaner / Cleaning pad
		(2) Lens 55GA6001*	●					Blower brush
		(3) 1st mirror 55GA6106*	●					Blower brush / Cleaning pad
		(4) 2nd mirror 55GA6115*	●					Blower brush / Cleaning pad
		(5) Original glass (1) 55GA6139*	●					Drum cleaner / Cleaning pad
		(6) Optics drive wire (front)		●				
		(7) Optics drive wire (rear)		●				
		(8) Optics driven sheet 25BA6189*			●			Multi oil / Cotton tips
		(9) Optics driven sheet (upper) 55GA6132*			●			Multi oil / Cotton tips
		(10) APS sensors 25SA8552*	●					Blower brush
		(11) Photo sensors 55208551*	●					Blower brush
		(12) Lamp power supply relay cord 55YA9012*		●				

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
14	Fixing unit	(1) Fixing cleaning roller 55GA5312*				◎		
		(2) Fixing roller (A) 55GA5311*				◎		
		(3) Fixing cleaning pad 55GA5350*				◎		
		(4) Fixing roller (upper) 55GA5303*	●					Roller cleaner / Cleaning pad
		(5) Paper exit guide (lower) removing						
		(6) Fixing roller (lower) 55GA5304*	●					Roller cleaner / Cleaning pad
		(7) Fixing claw (upper) 25SA5315*	●					Roller cleaner / Cleaning pad
		(8) Fixing claw (lower) 54005310*	●					Roller cleaner / Cotton tips
		(9) Fixing paper exit roller (lower) 55GA5329*	●					Drum cleaner / Cleaning pad
		(10) Paper exit pulley 54005322*	●					Drum cleaner / Cleaning pad
		(11) Fixing entrance plate (lower) 55GA5320*	●					Roller cleaner / Cleaning pad
		(12) Fixing entrance plate (upper) 55GA5337*	●					Roller cleaner / Cleaning pad
		(13) Fixing temperature sensor 2 55GA8842*	●					Roller cleaner / Cleaning pad
		(14) Photo sensor 55208551*	●					Blower brush
		(15) Paper exit guide (lower) installing						
		(16) Fixing upper cover installing						
		(17) Fixing unit installing						
15	Final check	(1) Toner cartridge supply					(●)	
		(2) W.U.T measure and check		●				
		(3) Image check after changing consumables (Necessary operation when replacing the 200,000 copy materials).		●				
		(4) Copy sample check		●				
		(5) PM counter reset (25 mode)		●				
		(6) Leakage breaker reset		●				
		(7) Machine surroundings, Externals	●	●				Drum cleaner / Cleaning pad

2. RADF [DF-315] (Every 100,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Machine inside	(1) Registration sensor mirror	●					Blower brush
		(2) Registration sensor	●					Blower brush
		(3) Read sensor reflection element	●					Blower brush
		(4) Read sensor	●					Blower brush
		(5) Switchback sensor mirror	●					Blower brush
		(6) Switchback sensor	●					Blower brush
		(7) Paper dust removing pad	●					Blower brush
		(8) Paper feed roller	●					Drum cleaner / Cleaning pad
		(9) Separation roller	●					Drum cleaner / Cleaning pad
		(10) Double feed prevention roller	●					Drum cleaner / Cleaning pad

3. DB [DB-208/DB-208A/DB608] (Every 100,000 copies or prints)

DB-208: Operational manhours of 1 unit X 3
DB-208A: Operational manhours of 1 unit X 1
DB-608: Operational manhours of 1 unit X 2

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Externals	(1) Externals		●				
2	Paper feed section	(1) Paper feed unit removing						
	Note	(2) Paper feed roller 25BA4032*	●			(◎)		Drum cleaner / Cleaning pad
	Note	(3) Separation roller 54004056*	●			(◎)		Drum cleaner / Cleaning pad
	Note	(4) Double feed prevention roller 54004056*	●			(◎)		Drum cleaner / Cleaning pad
		(5) Gears			●			Plus guard No. 2
		(6) Paper feed unit installing						
3	Externals	(1) Externals	●	●				Drum cleaner / Cleaning pad

Note : For the DB-208A alone, replace after 100,000 copies.

4. FNS [FS-109] (Every 100,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Conveyance section	(1) Conveyance drive roller (A)	●					Drum cleaner / Cleaning pad
		(2) Paper exit drive roller	●					Drum cleaner / Cleaning pad

[3] Main Body Periodic Check

1. Periodic check (I) (Every 200,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Fixing unit	(1) Fixing claw (upper) 25SA5315*				◎		
		(2) Heat insulating sleeve 45405339*				◎		Tri-flow
		(3) Fixing roller (upper) 55GA5303*				◎		
2	Drum unit	(1) Drum				◎		Setting powder
		(2) Separation claw 55GA-206*				◎		
		(3) Drum counter reset (47 mode)		●				
3	Developing unit	(1) Developer (include the developing unit installing)				◎		
		(2) L detection adjustment (36 mode)		●				
4	Paper feed unit	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		
5	Ozone filter	(1) Ozone filter 55YA7350*				◎		
		(2) Fixing filter 55GA7337*				◎		

2. Periodic check (II) (Every 400,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	By-pass (paper feed section)	(1) Double feed prevention roller 54004056*				◎		
		(2) Separation roller 54004056*				◎		
		(3) Paper feed roller 25BA4032*				◎		
2	Fixing unit	(1) Fixing claw (lower) 54005310*				◎		
		(2) Fixing roller (lower) 55GA5304*				◎		
		(3) Fixing bearing (upper) 55GA7502*				◎		
		(4) Bearing 55GA7503*				◎		
		(5) Fixing bearing (lower) 55GA7504*				◎		

3. Periodic check (III) (Every 800,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Fixing unit	(1) Fixing heater lamp 1 55HF8302*				◎		
		(2) Fixing heater lamp 2 55HF8303*				◎		

[4] RADF [DF-315]

1. Periodic check (Every 200,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section	(1) Paper feed roller 120A4582*				◎		
		(2) Separation roller 120A4582*				◎		
		(3) Double feed prevention pad 120A-458*				◎		
		(4) Paper dust removing pad 129H-472*				◎		

[5] DB [DB-208]

1. Periodic check (Every 300,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section (three units)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

[6] DB [DB-608]

1. Periodic check (Every 200,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section (two units)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

[7] FNS [FS-109]

1. Periodic check (Every 300,000 copies or prints)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper exit section	(1) Paper exit drive roller / A (Tray 2) 13LP-498*				◎		
		(2) Paper exit drive roller / A (Tray 3) 13LP-498*				◎		

[8] Actual Count Replacement Parts

Classification	Parts name	Part number	Actual count
Drum cartridge (include charging corona unit)	Cleaning blade	55GA5601*	100,000
	Charging wire	55FA2501*	100,000
	Charging control plate	55GA2507*	100,000
	Cleaner mount assembly	55GA-252*	100,000
	Charging wire cleaning block (C)	55GA-253*	100,000
	Charging wire cleaning block (D)	55GA-255*	100,000
	Transfer/Separation charging wire	55GA2607*	100,000
	OPC drum	–	200,000
	Separation claw	55GA-206*	200,000
Developing unit	Developer	–	200,000
Paper feed unit	(Tray: 1) Separation rubber	54004056*	100,000
	(Tray: 1) Paper feed rubber	25BA4032*	100,000
	(Tray: 1) Double feed prevention rubber	54004056*	100,000
	(Tray: 2) Separation rubber	54004056*	100,000
	(Tray: 2) Paper feed rubber	25BA4032*	100,000
	(Tray: 2) Double feed prevention rubber	54004056*	100,000
	(Tray: 3) Separation rubber	54004056*	100,000
	(Tray: 3) Paper feed rubber	25BA4032*	100,000
	(Tray: 3) Double feed prevention rubber	54004056*	100,000
	(Tray: 4) Separation rubber	54004056*	100,000
	(Tray: 4) Paper feed rubber	25BA4032*	100,000
	(Tray: 4) Double feed prevention rubber	54004056*	100,000
By-pass paper feed unit	(By-pass) Separation rubber	54004056*	100,000
	(By-pass) Paper feed rubber	25BA4032*	100,000
	(By-pass) Double feed prevention rubber	54004056*	100,000
Fixing unit	Fixing cleaning roller	55GA5312*	100,000
	Fixing roller (A)	55GA5311*	100,000
	Fixing cleaning pad	55GA5350*	100,000
	Fixing roller (upper)	55GA5303*	200,000
	Fixing claw (upper)	25SA5315*	200,000
	Heat insulating sleeve	45405339*	200,000
	Fixing roller (lower)	55GA5304*	400,000
	Fixing claw (lower)	54005310*	400,000
	Fixing bearing (upper)	55GA7502*	400,000
	Bearing	55GA7503*	400,000
	Fixing bearing (lower)	55GA7504*	400,000
	Fixing heater lamp / 1	55HF8302*	800,000
	Fixing heater lamp / 2	55HF8303*	800,000

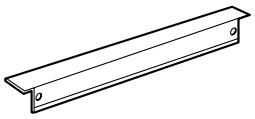
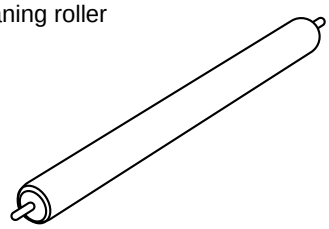
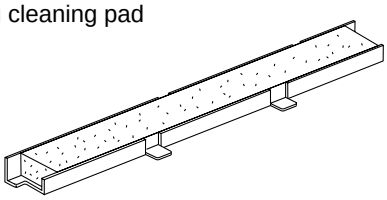
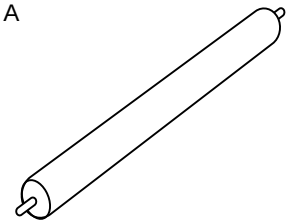
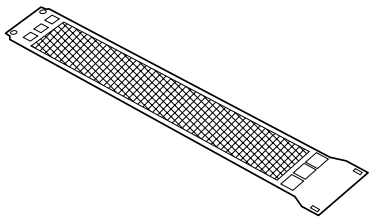
Classification	Parts name	Part number	Actual count
Rear of main body	Ozone filter	55YA7350*	200,000
	Fixing filter	55GA7337*	200,000
DF-315	Paper feed roller	120A4582*	90,000
	Separation roller	120A4582*	90,000
	Double feed prevention pad	120A-458*	90,000
	Pick-up clutch ass'y	129H-474*	450,000
	Paper dust removal pad	129H-472*	90,000
FS-109	(Tray 2) Paper exit drive roller / A	13LP-498*	200,000
	(Tray 3) Paper exit drive roller / A	13LP-498*	200,000
	* Staple unit (front)	120H5040*	500,000
	* Staple unit (rear)	120H5040*	500,000

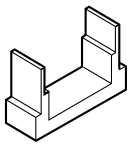
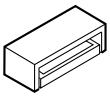
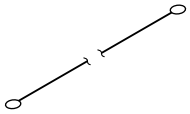
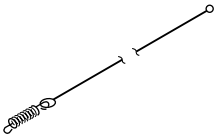
Note: Regarding usage frequency, 1 staple of the 3-sheets sort is the condition for assuming a main body count 1.5 million resistance when using the system.

COPY MATERIALS

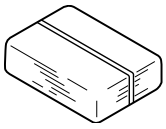
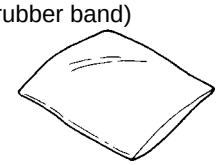
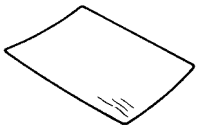
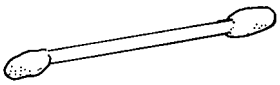
[1] PM Parts Kit Composition

1. Composition (100,000 copies/kit)

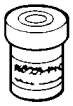
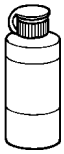
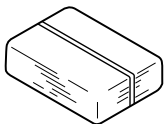
Name	Quantity
Cleaning blade 	1
Fixing cleaning roller 	1
Fixing cleaning pad 	1
Fixing roller / A 	1
Charging control plate 	1

Name	Quantity
Cleaner mount assembly 	1
Charging wire cleaning block (C)	1
Charging wire cleaning block (D) 	1
Charging corona wire 	1
Charging wire (Transfer/Separation corona) 	2
Toner filter (Note)	1

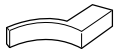
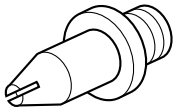
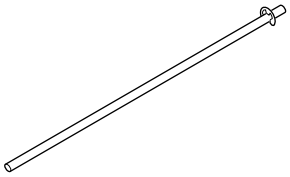
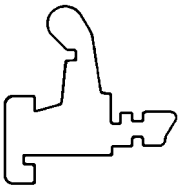
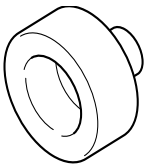
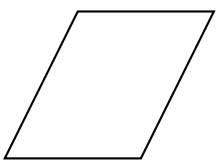
Note: Unnecessary in the case of the 7045.

Name	Quantity
Cleaning pad (10 sheets) 	3
Vanity bag for collection	1
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Cotton tips (4 pcs.) 	1

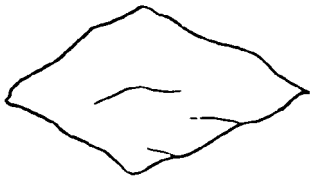
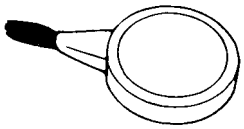
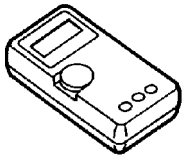
SERVICE MATERIALS LIST

Material No.	Description	Shape	Remark
000V-16-0	Drum cleaner	200 ml	
000V-17-0	Roller cleaner	200 ml	
00GR00020	Plus guard No. 2	 25 g	
00GR00170	Multi-oil	 200 ml	
000V-19-0	Setting powder	25 g	
000V-18-1	Cleaning pad	 10 pcs 1 pack	

SPECIAL TOOLS LIST

Tool No.	Description	Shape	Quantity	Remark
55GAJG01*	Temperature sensor position adjusting jig (for fixing)		1	
120A1052*	RADF position adjusting jig		1 set	2 pieces/set
7050K002*	Optics position adjusting jig		2	
00M6-2-00	Door switch jig		1	
00VD-5000	New pyramid chart		1	
55GA2025*	Drum support tool **(Note)**		1	Instelled below the total counter in the front door
120A9711*	ADJ chart		1	
120A9712*	White chart		1	

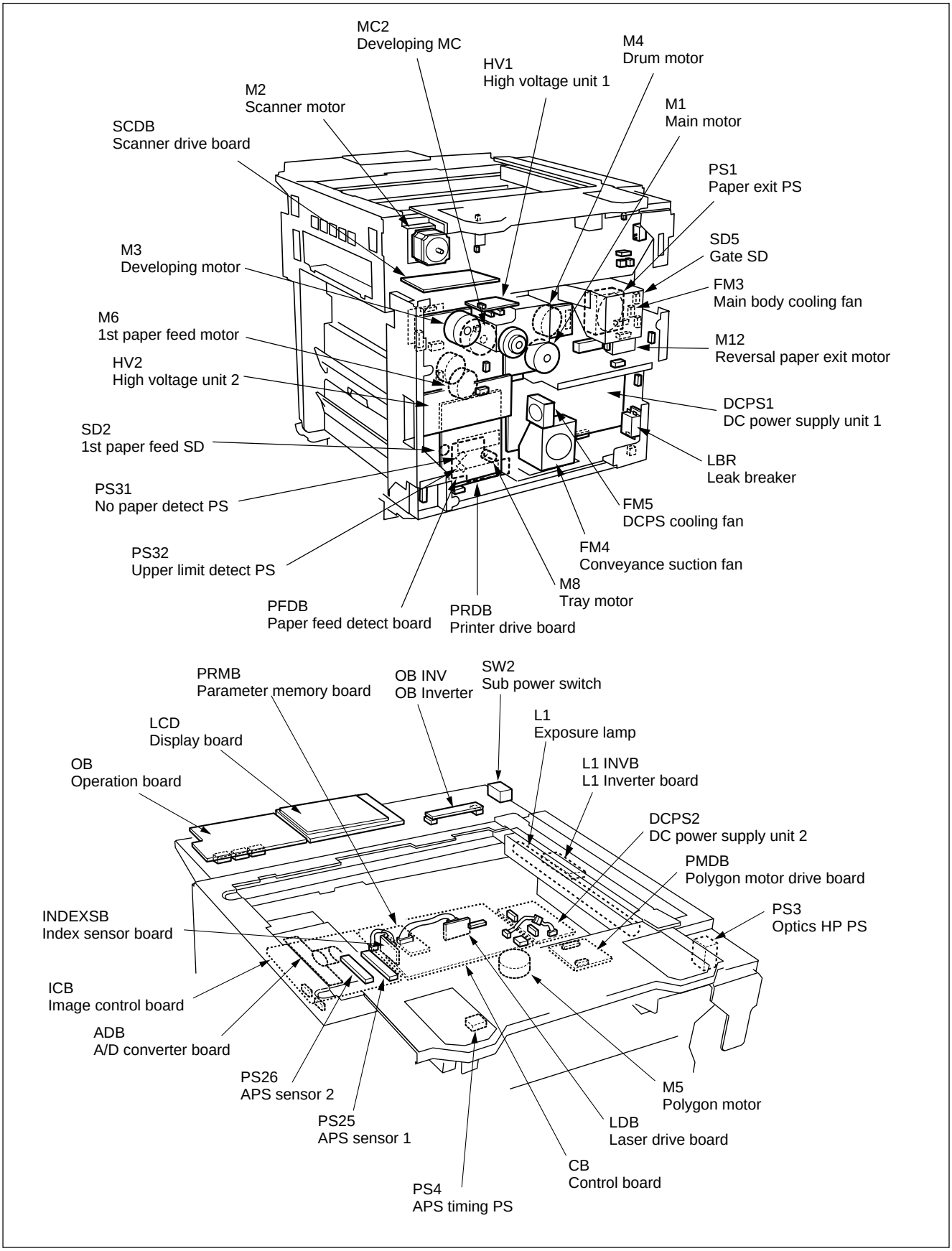
Note: The 55GA2025* drum support tool is screwed to the inside of the main body (front panel/left).
Application: Makes it possible to rotate the drum with the drum cartridge removed from the main body.

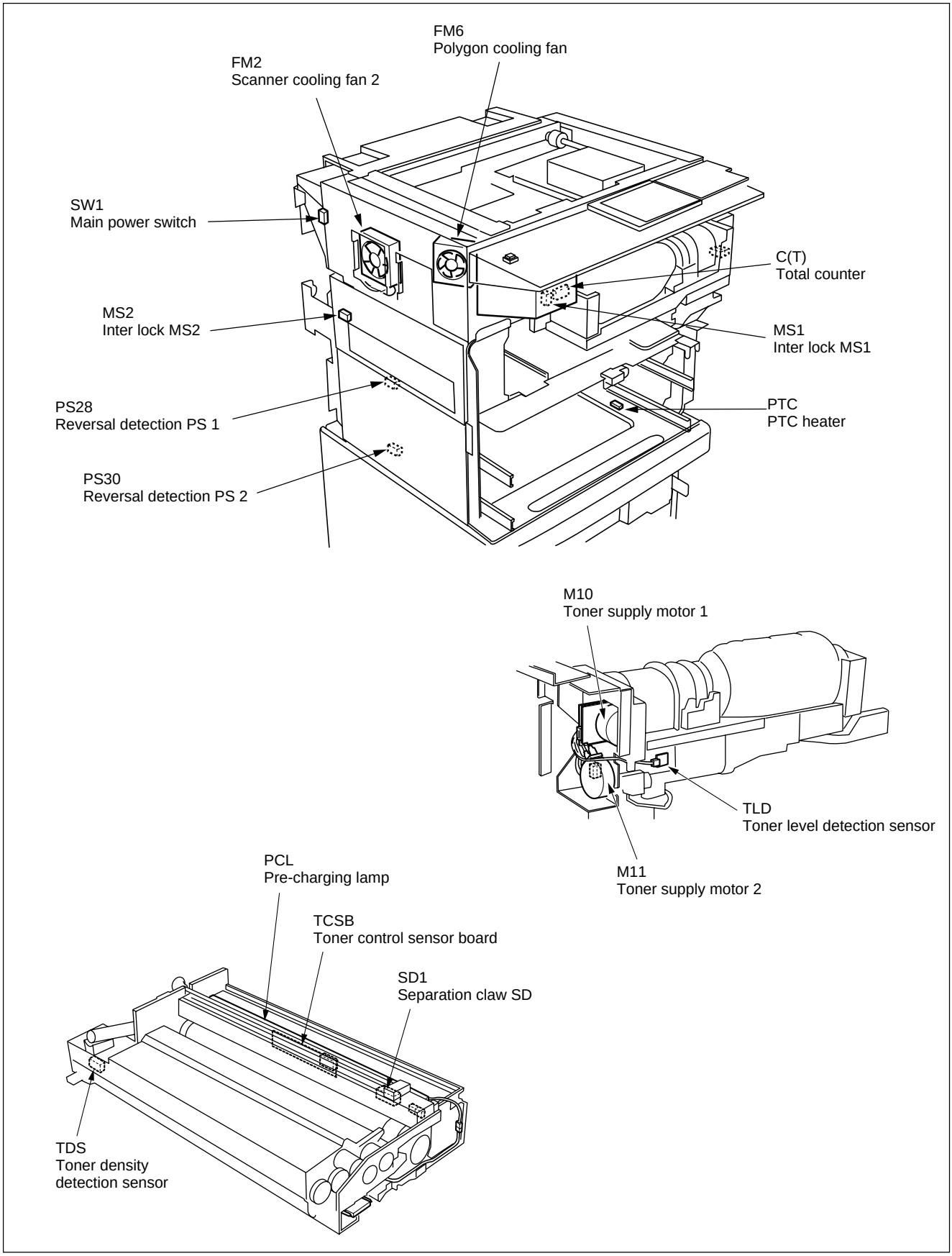
Tool No.	Description	Shape	Quantity	Remark
00VC-2-00	Drum cover		1	
00VD-1000	Blower brush		1	
00VE-1004	Tester	 (00VE-1004)	1	

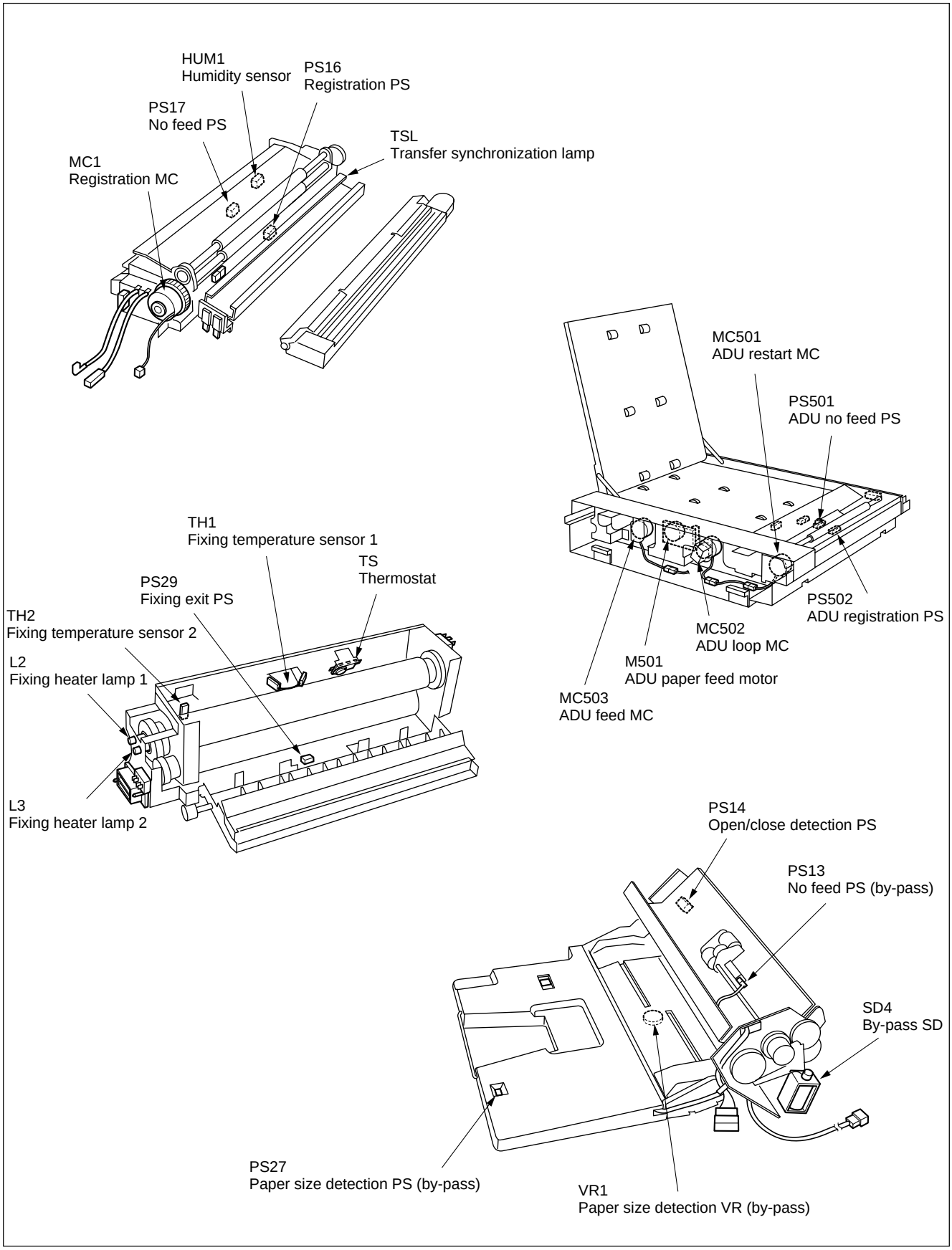
5

DIAGRAMS/ TIMING CHARTS

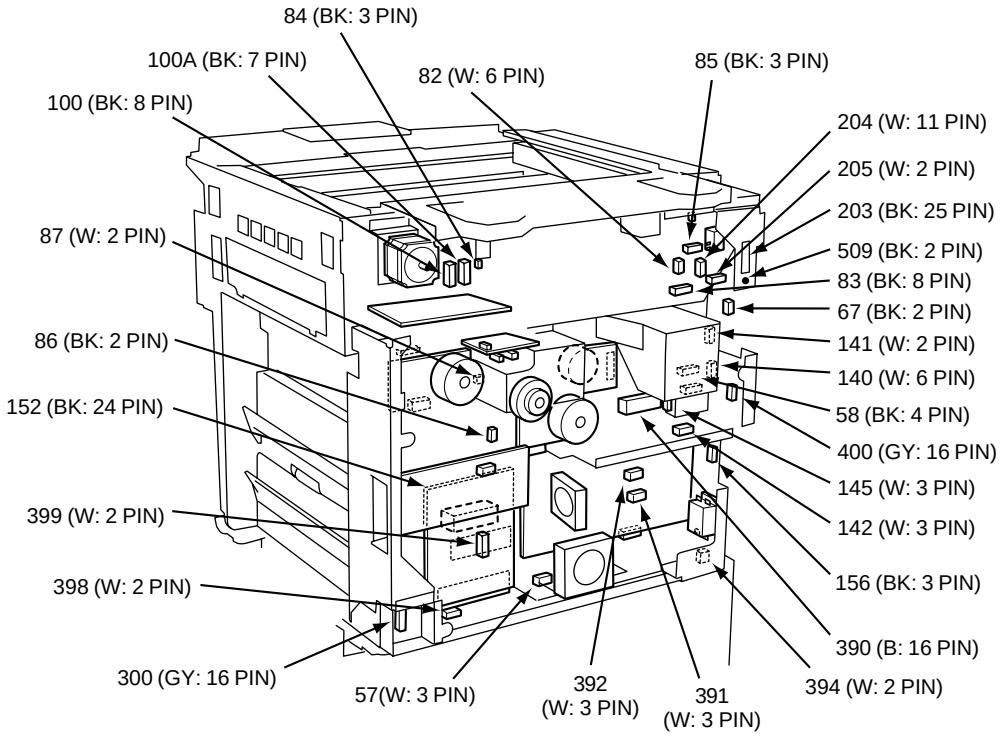
7045 ELECTRICAL PARTS LAYOUT DRAWING

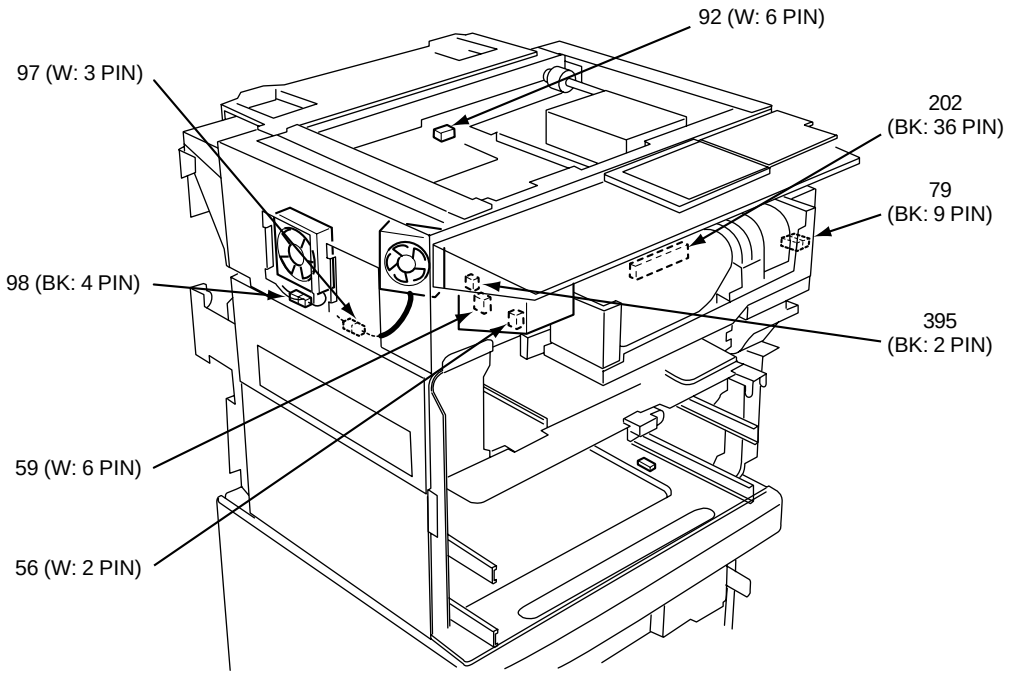


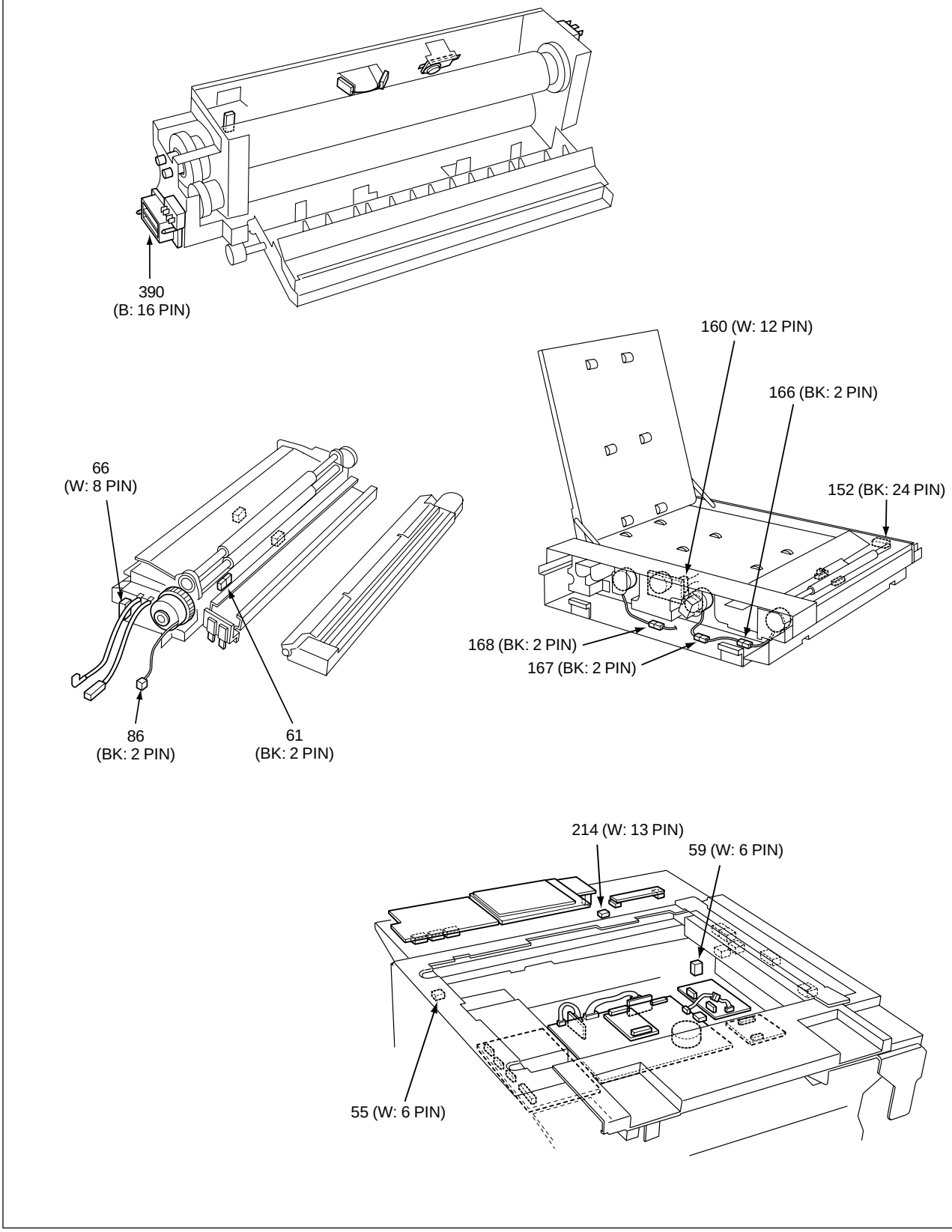

FM6
Polygon cooling fan
FM2
Scanner cooling fan 2
SW1
Main power switch
C(T)
Total counter
MS2
Inter lock MS2
MS1
Inter lock MS1
PS28
Reversal detection PS 1
PTC
PTC heater
PS30
Reversal detection PS 2
M10
Toner supply motor 1
TLD
Toner level detection sensor
M11
Toner supply motor 2
PCL
Pre-charging lamp
TCSB
Toner control sensor board
SD1
Separation claw SD
TDS
Toner density
detection sensor

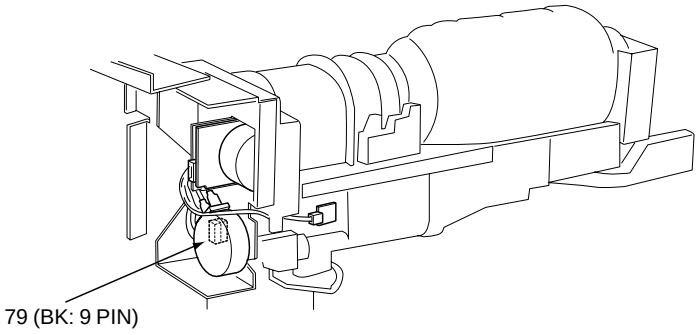

HUM1
Humidity sensor
PS16
Registration PS
PS17
No feed PS
TSL
Transfer synchronization lamp
MC1
Registration MC
MC501
ADU restart MC
PS501
ADU no feed PS
PS502
ADU registration PS
MC502
ADU loop MC
M501
ADU paper feed motor
MC503
ADU feed MC
TH1
Fixing temperature sensor 1
TS
Thermostat
PS29
Fixing exit PS
TH2
Fixing temperature sensor 2
L2
Fixing heater lamp 1
L3
Fixing heater lamp 2
PS14
Open/close detection PS
PS13
No feed PS (by-pass)
SD4
By-pass SD
PS27
Paper size detection PS (by-pass)
VR1
Paper size detection VR (by-pass)

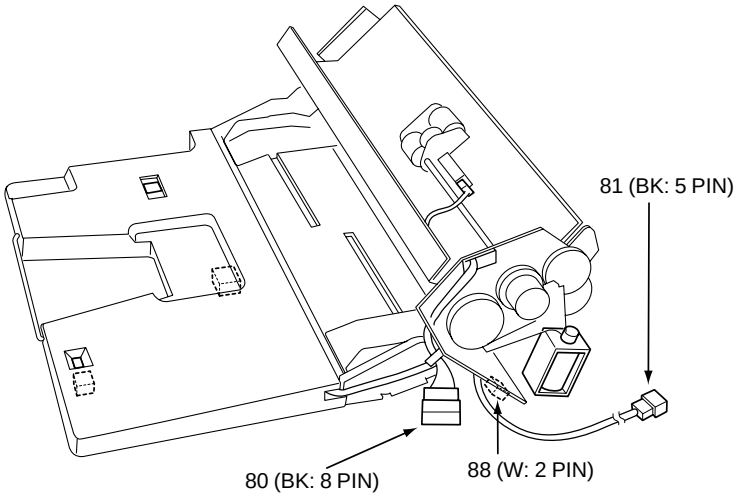
7045 CONNECTOR LAYOUT DRAWING

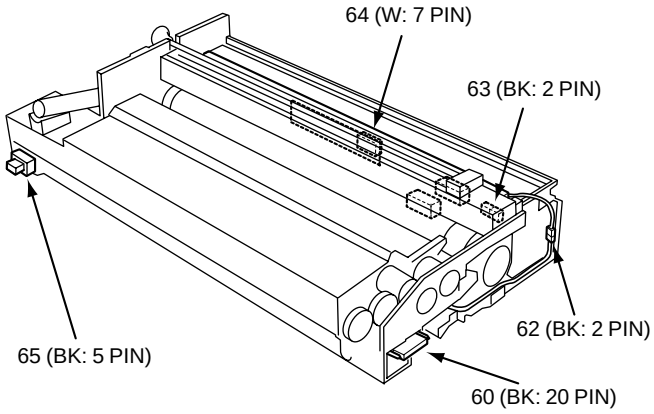





390
(B: 16 PIN)
160 (W: 12 PIN)
166 (BK: 2 PIN)
152 (BK: 24 PIN)
66
(W: 8 PIN)
168 (BK: 2 PIN)
167 (BK: 2 PIN)
86
(BK: 2 PIN)
61
(BK: 2 PIN)
214 (W: 13 PIN)
59 (W: 6 PIN)
55 (W: 6 PIN)


79 (BK: 9 PIN)


81 (BK: 5 PIN)
80 (BK: 8 PIN)
88 (W: 2 PIN)


64 (W: 7 PIN)
63 (BK: 2 PIN)
65 (BK: 5 PIN)
62 (BK: 2 PIN)
60 (BK: 20 PIN)

Control Board

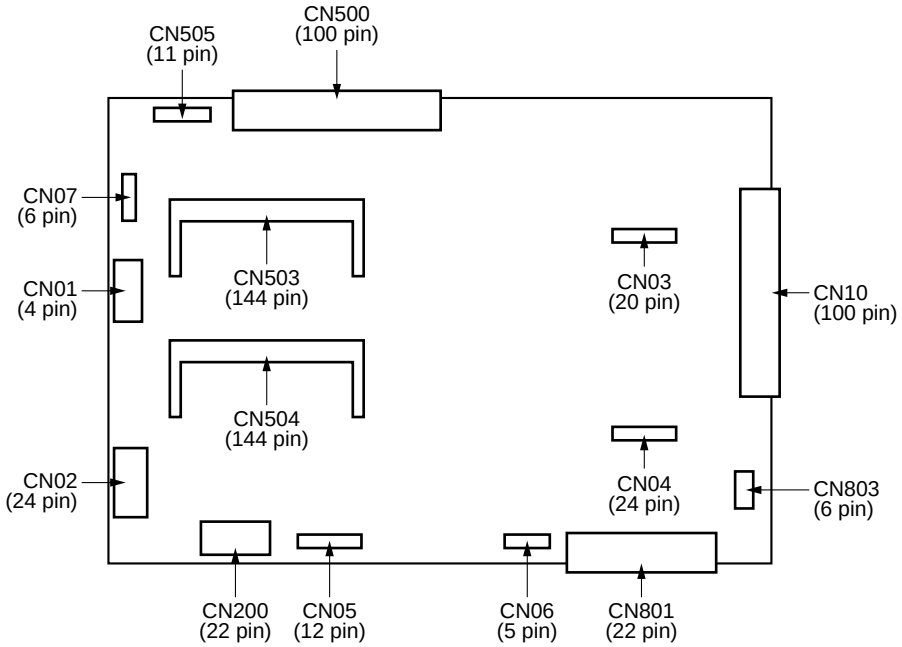
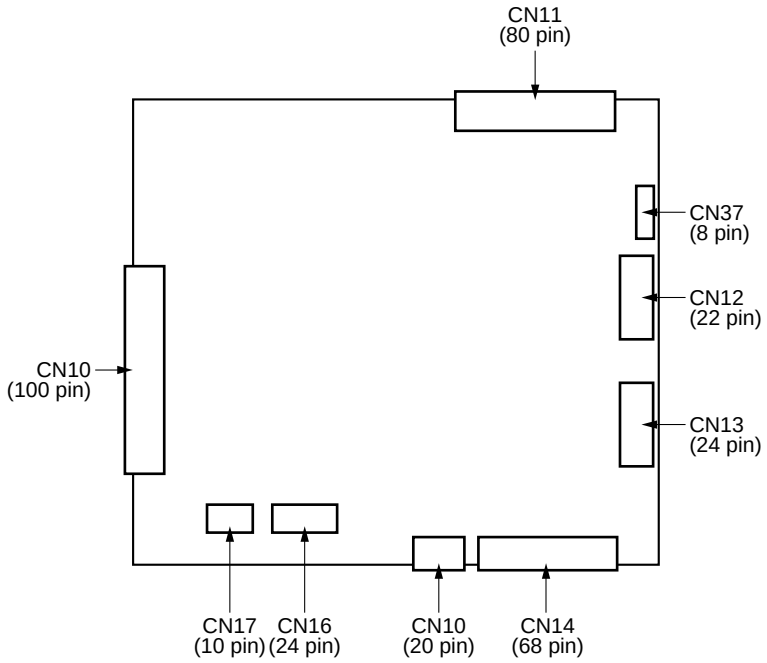
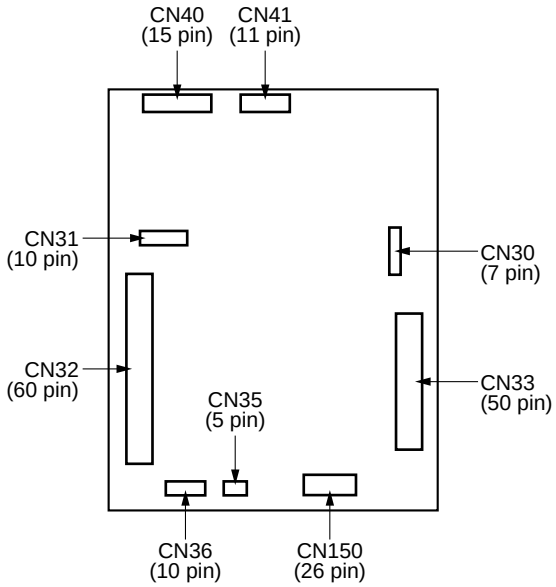


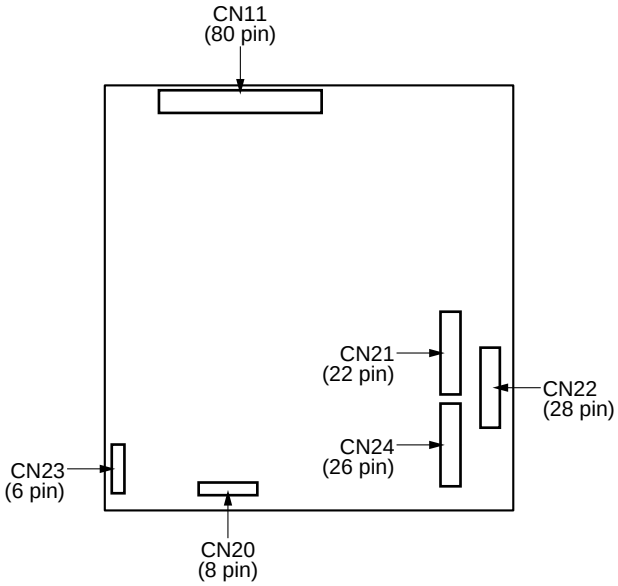
Image control board



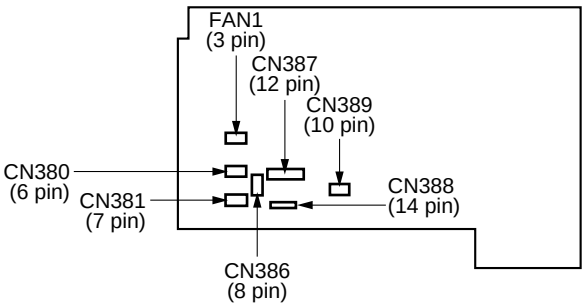
Printer drive board



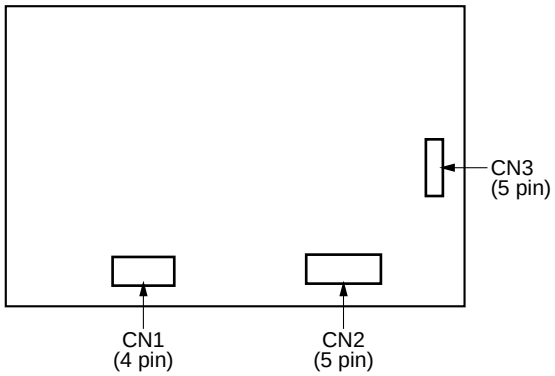
Scanner drive board



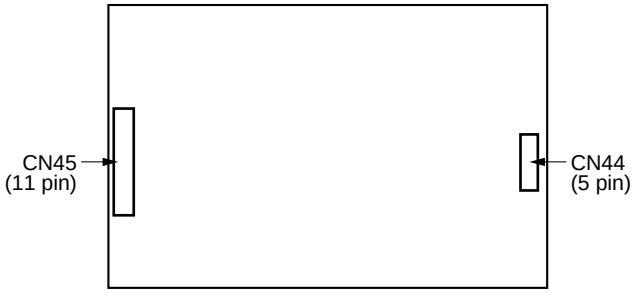
DC power supply unit 1



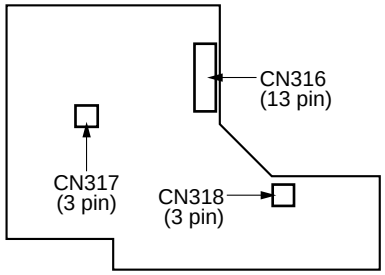
DC power supply unit 2



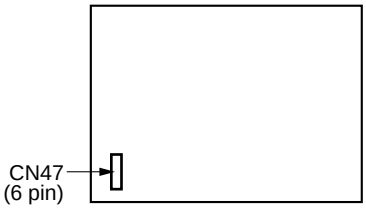
Polygon motor drive board



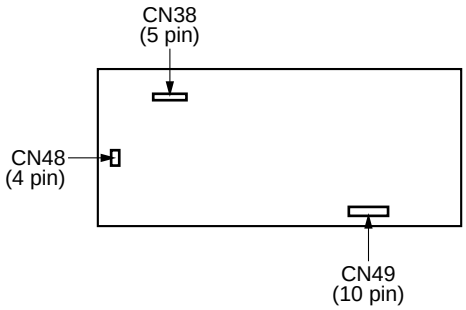
Paper feed detect board



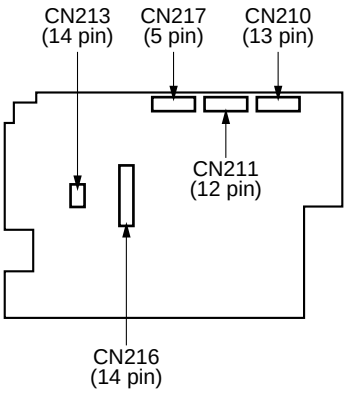
High voltage unit 1



High voltage unit 2

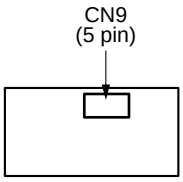


Operation board

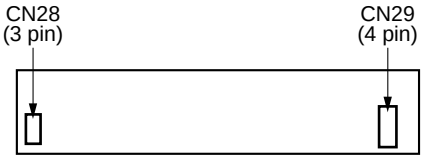


Parameter memory board

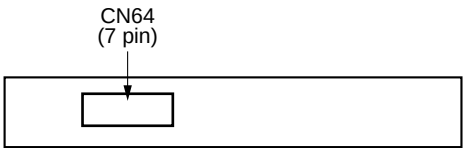
Index sensor board



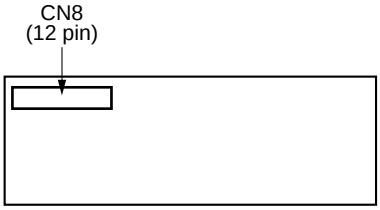
L1 Inverter board



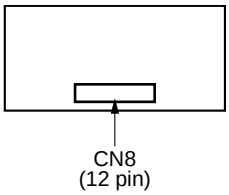
Toner control sensor board



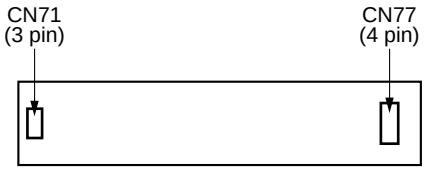
Laser drive board



A/D converter board

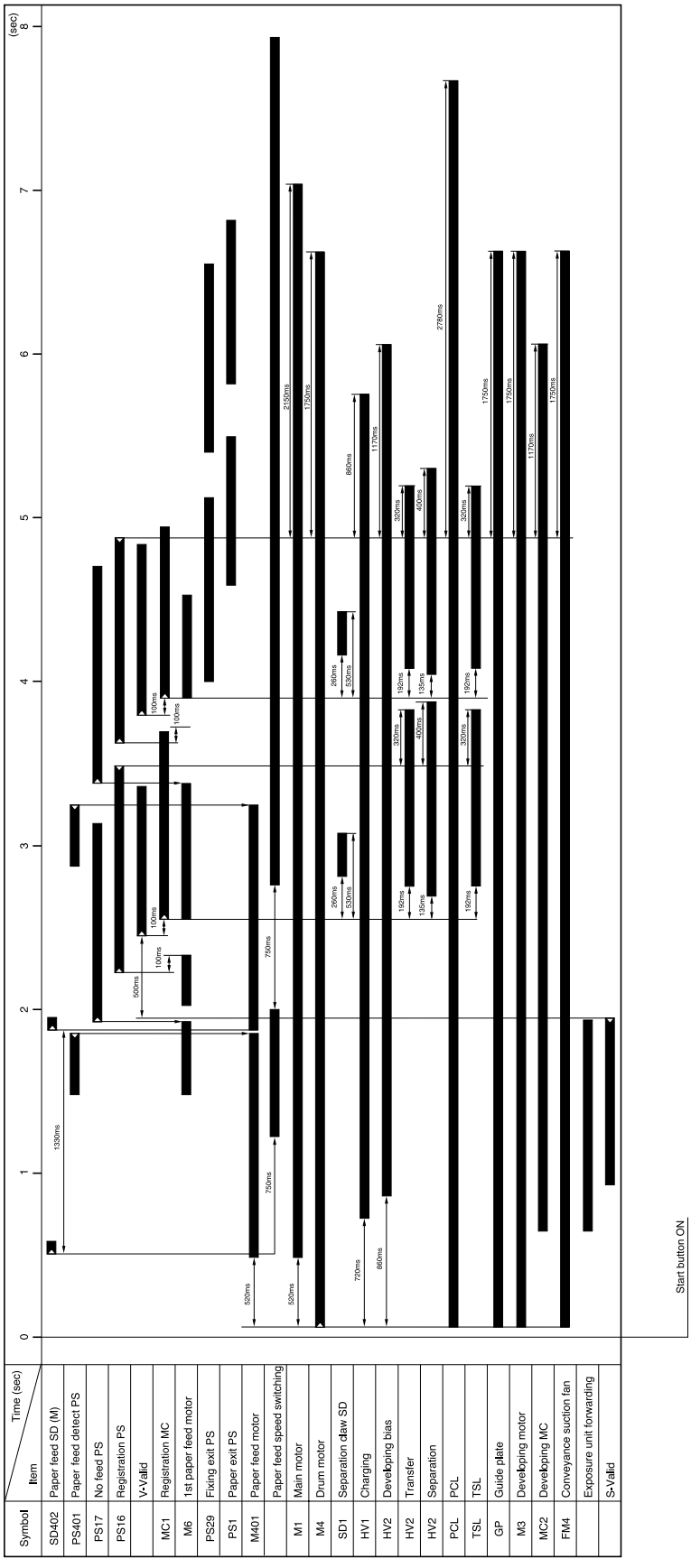


OB inverter



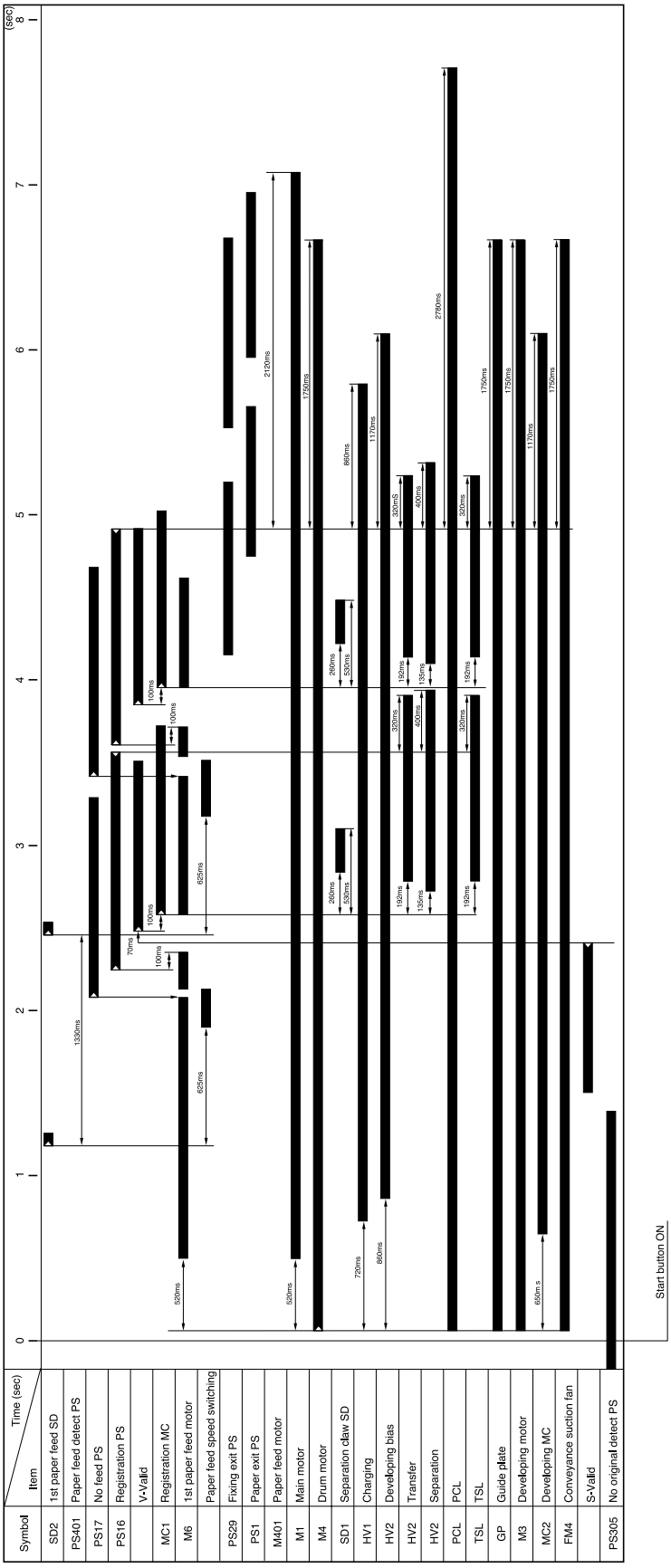
7045 TIMING CHART

(8.5X11, LIFE SIZE, MANUAL DENSITY, TWO COPIES, DB MIDDLE TRAY PAPER FEED)

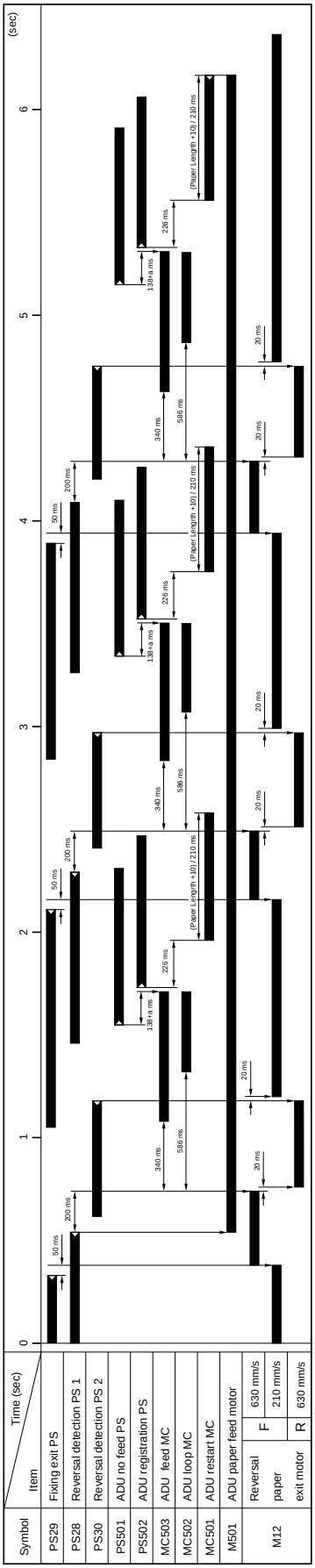


7045 TIMING CHART

(ADF ORIGINAL, 8.5X11, LIFE SIZE, AES, TWO COPIES, TRAY1 PAPER FEED)



ADU TIMING CHART (8.5X11, LIFE SIZE, THREE COPIES)



Symbol	Item		
PS29	Fixing exit PS		
PS28	Reversal detection PS 1		
PS30	Reversal detection PS 2		
PS501	ADU no feed PS		
PS502	ADU registration PS		
MC503	ADU feed MC		
MC502	ADU loop MC		
MC501	ADU restart MC		
M501	ADU paper feed motor		
M12	Reversal paper exit motor	F	630 mm/s
			210 mm/s
		R	630 mm/s

6

JAM/ERROR CODES

JAM CODE LIST

	Classification	Jam code		Causes	Operation when jam occurs	Jam clearing method
Main body	By-pass feed tray	J10	Operating	PS16 (registration) is not turned ON within a certain period after SD4 (by-pass paper feed) has been turned ON.	If a copy is being made when a jam occurs, copy operation is stopped after completion of exit of the copy.	Remove the original paper from by-pass tray, then remove the jammed paper.
	Tray 1	J12		PS17 (no feed) is not turned ON within a certain period after SD2 (1st paper feed) has been turned ON.		Open the main body conveyance door and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
DB	DB upper tray	J13		PS401 (paper feed detect) is not turned ON within a certain period after SD401 (paper feed (upper)) has been turned ON.		Open the DB conveyance door and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
	DB middle tray or LCT	J14		PS401 (paper feed detect) is not turned ON within a certain period after SD402 (paper feed (middle)) has been turned ON.		
	DB lower tray	J15		PS401 (paper feed detect) is not turned ON within a certain period after SD403 (paper feed (lower)) has been turned ON.		
	Paper feed conveyance	J16		PS16 (registration) is not turned ON within a certain period after PS17 (no feed) or PS401 (paper feed detect) has been turned ON.		Open the main body conveyance door, DB conveyance door or front door and remove the jammed paper and close it.
Main body, ADU and FNS	Others	J20-1		During copying, the front door or exit door was opened.	The main body is stopped immediately.	Remove the jammed paper and close it.
		J20-2		During copying, the main body conveyance door was opened.		
		J20-3		During copying, the FNS was opened.		
	Paper feed conveyance	J30		PS16 (registration) is not turned OFF within a certain period after MC1 (registration) has been turned ON.		Open the front door and remove the jammed paper and close it.
		J31		PS29 (fixing exit) is not turned ON within a certain period after MC1 (registration) has been turned ON.		
	Fixing/ Paper exit/ ADU	J32		PS1 (paper exit) is not turned ON within a certain period after PS29 (fixing exit) has been turned ON. (at the straight eject mode)		Open the exit door and remove the jammed paper and close it.
		J33		PS1 (paper exit) is not turned OFF within a certain period after it has been turned ON. (at the straight eject mode)		

	Classification	Jam code		Causes	Operation when jam occurs	Jam clearing method
Main body, ADU and DB	Fixing/ Paper exit/ ADU	J34-1	Operating	PS28 (reversal detection 1) is not turned ON within a certain period after PS29 (fixing exit) has been turned ON.	The main body is stopped immediately.	Open the exit door and remove the jammed paper and close it.
		J34-2		PS28 (reversal detection 1) is not turned OFF within a certain period after it has been turned ON.		
		J34-3		PS1 (paper exit) is not turned ON within a certain period after M501 (ADU paper feed) has been turned ON. (when the paper is reverse ejected.)		Open the front door and remove the jammed paper and close it.
		J34-4		PS1 (paper exit) is not turned OFF within a certain period after it has been turned ON. (when the paper is reverse ejected.)		Open the exit door and remove the jammed paper and close it.
		J34-5		PS30 (reversal detection 2) is not turned OFF within a certain period after it has been turned ON.		
	Others	J50-1		When PS16 (registration) is turned on, print requirement signal is not sent within the certain time.		Open the main body conveyance door, DB conveyance door or front door and remove the jammed paper and close it.
		J50-2		When the start button is on, S-valid does not turn on within the certain time.		
		J50-3		When the start button is on, MC1 (registration) does not turn on within the certain time.		
RADF	RADF	J61-0		MS301 (cover open/close detect) is OFF white the RADF is operating.	RADF is stopped immediately. If there is paper during or after transfer, the main body is stopped after exit of the paper.	Open the RADF and remove the jammed paper and close it.
		J61-1		PS301 (DF open/close detect) was turned OFF during RADF operation.		
		J62-0		PS306 (original registration) is not turned ON within a certain period after the original feed has been started.		
		J62-1		PS306 (original registration) is not turned OFF within a certain period after it has been turned ON.		
		J62-2		PS308 (original feed detect) is not turned ON within a certain period after the pre-feed of the duplex original front side (include the simplex original) has been started.		
		J62-3		PS308 (original feed detect) is not turned ON within a certain period after the pre-feed of the duplex original back side has been started.		
		J62-4		PS308 (original feed detect) is not turned OFF within a certain period after the scanning of the duplex original front side (include the simplex original) has been started.		

	Classification	Jam code		Causes	Operation when jam occurs	Jam clearing method
RADF	RADF	J62-5	Operating	PS308 (original feed detect) is not turned OFF within a certain period after the scanning of the duplex original back side has been started.	RADF is stopped immediately. If there is paper during or after transfer, the main body is stopped after exit of the paper.	Open the RADF and remove the jammed paper and close it.
		J63-0		PS307 (original exit detect) is not turned ON within a certain period after the scanning of the simplex original has been started.		
		J63-1		PS307 (original exit detect) is not turned ON within a certain period after the scanning of the duplex original back side has been started.		
		J63-2		At the simplex original is exited, PS307 (original exit detect) is not turned OFF within a certain period after it has been turned ON.		
		J63-3		At the duplex original is exited, PS307 (original exit detect) is not turned OFF within a certain period after it has been turned ON.		
		J63-4		PS309 (original reverse detect) is not turned ON within a certain period after the scanning of the duplex original front side has been started.		
		J63-5		PS309 (original reverse detect) is not turned ON within a certain period after the reverse feed has been started.		
		J63-6		At the start of the duplex original front side scanning, PS309 (original reverse detect) is not turned OFF within a certain period after it has been turned ON.		
		J63-7		At the start of the reverse feed, PS309 (original reverse detect) is not turned OFF within a certain period after it has been turned ON.		
		J65-1	Stationary	PS306 (original registration) is ON during idling.		
		J65-2		PS308 (original feed detect) is ON during idling.		
		J65-4		PS309 (original reverse detect) is ON during idling.		
		J65-8		PS307 (original exit detect) is ON during idling.		

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
FNS	FNS	J72-1	Stationary	PS802 (drum entrance) is ON during idling.	FNS and main body are stoped immediately.	Remove the jammed paper of the FNS and main body.
		J72-4	Stationary	PS803 (tray 1 paper exit detect) is ON during idling.		
		J72-10	Operating	PS803 (tray 1 paper exit detect) is not turned ON within a certain period after PS1 (paper exit) has been turned ON.		
		J72-11	Operating	PS803 (tray 1 paper exit detect) is not turned OFF within a certain period after it has been turned ON.		
		J72-12	Operating	PS802 (drum entrance) is not turned ON within a certain period after PS1 (paper exit) has been turned ON.		
		J72-13	Operating	PS802 (drum entrance) is not turned OFF within a certain period after it has been turned ON.		
		J72-14	Operating	PS804 (paper through detect) is not turned ON within a certain period after PS802 (drum entrance) has been turned ON.		
		J72-15	Operating	PS804 (paper through detect) is not turned OFF within a certain period after it has been turned ON.		
		J72-16	Operating	Paper detect sensor of the stapler unit is not turned ON within a certain period after M805 (paper exit) has been turned ON.		
		J72-21	Operating	Stapler (front) staple jam.		
		J72-22	Operating	Stapler (rear) staple jam.		
Main body and ADU	Paper feed conveyance	J80	Stationary	PS17 (no feed) is ON during idling.	The main body are stoped immediately.	Open the main body conveyance door, DB conveyance door or front door and remove the jammed paper and close it.
		J81	Stationary	PS16 (registration) is ON during idling.		
		J82	Stationary	PS401 (paper feed detect) is ON during idling.		
	Fixing/ Paper exit/ ADU	J90	Stationary	PS29 (fixing exit) is ON during idling.		Open the exit door and remove the jammed paper and close it.
		J91	Stationary	PS1 (paper exit) is ON during idling.		
		J92	Stationary	PS28 (reverse detect 1) is ON during idling.		
		J93	Stationary	PS30 (reverse detect 2) is ON during idling.		
		J97-1	Operating	PS501 (ADU no feed) is not turned ON within a certain period after M501 (ADU paper feed) has been turned ON.		
		J100	Stationary	PS502 (ADU registration) is ON during idling.		

ERROR CODE LIST

Classification	Warning code	Causes	Operation in case of warning occurrence	Estimated abnormal parts
Communication abnormality	F10-1	Serial communication between the PRDB (printer drive board) and ICB (image control board) is discontinued.	The machine stops immediately, and main relay and 24VDC are turned OFF.	PRDB (printer drive board) ICB (image control board) SCDB (scanner drive board)
	F10-2	The answer to the A/D conversion is not replied two times consecutively.		PRDB (printer drive board)
	F10-3	DB communication abnormality signal is detected.		ICB (image control board) SCDB (scanner drive board) PFDB (paper feed detect board)
Paper feed lifting abnormality	F18-2	PS32 (upper limit) on the PFDB (paper feed detect board) is not turned ON within 26 seconds from ON of M8 (tray).		PRDB (printer drive board) SCDB (scanner drive board) PFDB (paper feed detect board) M8 (tray) M402(up/down (U)) M403(up/down (M)) M404 (up/down (L)) PS32 (upper limit) PS403 (upper limit detect (U)) PS405 (upper limit detect (M)) PS407 (upper limit detect (L))
	F18-3	PS403 (upper limit detect (upper)) is not turned ON within 26 seconds from ON of M402 (up/down (upper)).		
	F18-4	PS405 (upper limit detect (middle)) is not turned ON within 26 seconds from ON of M403 (up/down (middle)).		
	F18-5	PS407 (upper limit detect (lower)) is not turned ON within 26 seconds from ON of M404 (up/down (lower)).		
High voltage power supply abnormality	F28-1	When charging output is judged to be abnormal discharge.	If a copy being made when an error occurs, the machine stops immediately after completion of exit of the copy, and main relay and 24VDC are turned OFF.	PRDB (printer drive board) HV1 (high voltage unit 1) Charging corona unit
	F28-2	When transfer output is judged to be an abnormal discharge.	The machine stops immediately, and main relay and 24VDC are turned OFF.	PRDB (printer drive board) HV2 (high voltage unit 2) Transfer corona unit
	F28-3	When separation output is judged to be an abnormal discharge.		PRDB (printer drive board) HV2 (high voltage unit 2) Separation corona unit

Classification	Warning code	Causes	Operation in case of warning occurrence	Estimated abnormal parts
Fixing high temperature abnormality	F34-1	TH1 (fixing temperature 1) detecting temperature (fixing temperature) exceeds approx. 225½C. (Fixing high temperature abnormality detection software operates.)	The machine stops immediately, and main relay and 24VDC are turned OFF. Set to “1” the bit 1 in SW3.	PRDB (printer drive board) DCPS1 (DC power supply1) TH1 (fixing temperature 1) TH2 (fixing temperature 2) L2 (fixing heater lamp 1) L3 (fixing heater lamp 2)
	F34-2	TH1 (fixing temperature 1) detecting temperature (fixing temperature) exceeds approx. 235½C. (Fixing high temperature abnormality detection circuit operates.)		
	F34-3	TH2 (fixing temperature 2) detecting temperature (fixing temperature) exceeds approx. 235½C. (Fixing high temperature abnormality detection software operates.)		
	F34-4	TH2 (fixing temperature 2) detecting temperature (fixing temperature) exceeds approx. 250½C. (Fixing high temperature abnormality detection circuit operates.)		
Fixing low temperature	F35-1	Warm-up is not completed within 180 seconds from the start of the warm-up. (Fixing low temperature abnormality detection software operates.)		
	F35-2	After completion of warm-up, fixing temperature is lower than -30°C. (Fixing law temperature abnormality software operates.)		
Fixing sensor abnormality (open circuit)	F36-1	Fixing temperature is not reached 30°C within 50 seconds from the start of the warm-up. (Fixing senser open circuit detection circuit operates.)		
	F36-2	TH2 (fixing temperature 2) is broken (open circuit). (Fixing sensor open circuit detection circuit operates.)		
Scanner abnormality	F40-1	The errror of SRGA is detected.	Scanner stops immediately and 24VDC is turned OFF.	ICB (image control board)
	F41-1	At the start of optics initial search or reverse scanning, PS3 (optics HP) is not turned ON within a certain period.		ICB (image control board) SCDB (scanner drive board) PS3 (optics HP)

Classification	Warning code	Causes	Operation in case of warning occurrence	Estimated abnormal parts
Image processing abnormality	F46-1	The monitor value of the laser light amount is low.	The machine stops immediately, and main relay and 24VDC are turned OFF.	ICB (image control board) LDB (laser drive board)
	F46-8	Index cycle differs from the expectation.		ICB (image control board) INDEXSB (index sensor board) M5 (polygon)
	F46-10	AOC counter overflow	Scanner stops immediately.	ICB (image control board) ADB (A/D converter board) L1 INVB (L1 inverter board) DCPS1 (DC power supply 1) L1 (exposure lamp)
	F46-11	AGC counter overflow		
	F49-2	LDB (laser diode board) connection abnormality	The machine stops immediately, and main relay and 24VDC are turned OFF.	ICB (image control board) LDB (laser drive board)
	F49-4	INDEXSB (index sensor board) connection abnormality		INDEXSB (index sensor board) ICB (image control board)
	F49-6	ADB (A/D converter board) connection abnormality	Scanner stops immediately.	ICB (image control board) ADB (A/D converter board)
Motor abnormality	F51-2	Speed abnormality in the M1 (main)	The machine stops immediately, and main relay and 24VDC are turned OFF.	PRDB (printer drive board) M1 (main)
	F51-3	Speed abnormality in the M10 (toner supply 1)	If a copy being made whenan error occurs, the machine stops immediately after completion of exit of the copy, and main relay and 24VDC are turned OFF.	PRDB (printer drive board) M10 (toner supply 1)
	F51-4	Speed abnormality in the M3 (developing)	The machine stops immediately, and main relay and 24VDC are turned OFF.	PRDB (printer drive board) M3 (developing)
	F51-5	Speed abnormality in the M4 (drum)		PRDB (printer drive board) M4 (drum)
	F51-6	Speed abnormality in the M5 (polygon)		ICB (image control board) SCDB (scanner drive board) M5 (polygon)
	F51-7	Speed abnormality in the M501 (ADU paper feed)		PRDB (printer drive board) M501 (ADU paer feed)
Fan abnormality	F52-1	Locking abnormality in the FM3 (main body cooling).		PRDB (printer drive board) FM3 (main body cooling)
	F52-2	Locking abnormality in the FM4 (conveyance suction).		PRDB (printer drive board) FM4 (conveyance suction)
	F52-3	Locking abnormality in the M5 (polygon).		PRDB (printer drive board) FM5 (polygon)
	F52-4	Locking abnormality in the FM2 (scanner cooling).		ICB (Image control board) SCDB (scanner drive board) FM2 (scanner cooling)
	F52-5	IP-431 cooling fan locking abnormality (printer kit)		IP-431cooling fan
	F52-6	IP-431 CPU cooling fan locking abnormality .		IP-431 CPU fan

Classification	Warning code	Causes	Operation in case of warning occurrence	Estimated abnormal parts
Image processing communication abnormality	E56-01	When the SW2 (sub power) is turned ON, the answer from the ICB (Image control board) is not replied to the CB (control board) within 10 seconds.	The machine stops immediately.	CB (control borad) ICB (image control board) PRDB (printer drive board) SCDB (scanner drive board)
	E56-02	The CB (control board) is not detected the process ready signal 60 seconds or more during idling.		
	E56-03	The CB (control board) is not detected the scanner ready signal 60 seconds or more during idling.		
	E56-04	The CB (control board) is not detected the finisher ready signal 60 seconds or more during idling.		CB (control borad) ICB (image control board) SCDB (scanner drive board) FNS
	E56-05	The CB (control board) is not detected the original size detect signal within a certain period during the platen copy operation.		CB (control borad) ICB (image control board) SCDB (scanner drive board)
Operation unit abnormality	E56-06	Memory access abnormality is occurred at the start of copy process.		CB (control borad) OB (operation board) LCD (display board)
	E56-07	Control abnormality is occurred at the panel manager.		
	E56-08	Miss matching of the display data.		
	E56-09	Display data abnormality.		
	E56-10	Operation communication abnormality.		
Control abnormality	F56-11	The machine type of the software version is different from that of the image processing control program.		ICB program
RADF abnormality	F60-1	RADF communication abnormality.	RADF can not be used.	ICB (image control board) SCDB (scanner drive board) RADF
	F60-11	RADF flash ROM abnormality.	The machine stops immediately.	DFCB (RADF control borad) RADF program
	F67-1	PS306 (original registration), PS308 (original feed detect), PS309 (original reverse detect) adjustment faulty.	RADF can not be used.	ICB (image control board) SCDB (scanner drive board) RADF
	F67-2	PS304 (motor clock detect) is not detected clock pulse, when M301 (original conveyance) is turned ON.		
	F67-3	Writing and reading abnormality of the nonvolatile memory (NVRAM).		
	F67-4	Other abnormality (RADF abnormality other than F67-1 to 3).		

Classification	Warning code	Causes	Operation in case of warning occurrence	Estimated abnormal parts
FNS abnormality	F70-1	FNS communication abnormality	The machine stops immediately.	ICB (image control board) SCDB (scanner drive board) FNSCB (FNS control board)
	F77-1	PS805 (tray upper limit) is not turned ON within 8 seconds from ON of M804 (up-down (upper)). Or the MS802 (up-down (upper)) is turned OFF.	The machine stops immediately, and main relay and 24VDC are turned OFF.	FNSCB (FNS control board) M804 (tray up/down) MS802 (up/down (upper)) MS803 (up/down (lower))
	F77-2	PS806 (tray lower limit detect) is not turned ON within 8 seconds from ON of M804 (up-down (upper)).		
	F77-3	PS801 (drum position) is not turned ON within 4 seconds from ON of M807 (conveyance drum).		FNSCB (FNS control board) M807 (conveyance drum drive)
	F77-4	At the forward rotation, PS815 (alignment motor HP (front)) is not turned OFF within 250 m seconds from ON of M809 (alignment (front)).		FNSCB (FNS control board) M809 (alignment (front))
	F77-5	At the reverse rotation, PS815 (alignment motor HP (front)) in not turned ON within 2 seconds from ON of M809 (alignment (front)).		
	F77-6	At the forward rotation, PS816 (alignment motor HP (rear)) is not turned OFF within 250 m seconds from ON of M808 (alignment (rear)).		FNSCB (FNS control board) M808 (alignment (rear))
	F77-7	At the reverse rotation, PS816 (alignment motor HP (rear)) in not turned ON within 2 seconds from ON of M808 (alignment (rear)).		
	F77-8	At the forward rotation, PS814 (stapler unit HP) is not turned OFF within 400 milliseconds from ON of M806 (stapler movement).		FNSCB (FNS control board) M806 (stapler movement)
	F77-9	At the reverse rotation, PS814 (stapler unit HP) is not turned ON within 4 seconds from ON of M806 (stapler movement).		
	F77-10	PS813 (paper exit motor HP) is not turned ON within 1.5 seconds from ON of M805 (paper exit).		FNSCB (FNS control board) M805 (paper exit)
FNS flash ROM abnormality	F77-11	FNS flash ROM abnormality.	The machine stops immediately.	FNSCB (FNS control board) FNS program

Classification	Warning code	Causes	Operation in case of warning occurrence	Estimated abnormal parts
FNS abnormality	F77-21	Stapler HP is not turned ON within a certain period after M803 (stapler (front)) is ON.	The machine stops immediately, and main relay and 24VDC are turned OFF.	FNSCB (FNS control board) M802 (stapler (front))
	F77-22	Stapler HP is not turned ON within a certain period after M802 (stapler (rear)) is ON.		FNSCB (FNS control board) M803 (stapler (rear))
	F77-30	MS802 (up-down (upper)) or MS803 (up-down (lower)) is turned OFF. MS804 (stapler safety) is turned OFF during stapling.		FNSCB (FNS control board) MS802 (up/down (upper) MS803 (up/down (lower)) MS804 (stapler safety)
Nonvolatile memory (NVRAM) abnormality	F80-1	Function parameter abnormality is detected.	Copy the factory saved data.	PRMB (parameter memory board)
	F80-2	Factory saved data abnormality is detected.	–	
	F80-3	Function parameter and factory saved data abnormality are detected.		
	F80-4	Can not be accessed to the function parameter.		
	F80-5	Can not be accessed to the factory saved data.		
Flash ROM abnormality	F81-01	The checksum error is detected on the flash ROM (on the ICB (image control board)).	The machine stops immediately.	ICB (image control board) ICB program
	F81-02	The machine type of software is differed between CB (control board) and ICB (image control board).		CB (control board) ICB (image control board) CB (system) program ICB program
	F81-03	The machine and CB (system) program model type do not match.		CB (control board) CB (system) program
IP-431 abnormality	F87-02	When SW1 (main power) is on, there is no response to initialization command within 5 minetes.		IP-431 control board CB (control board)
	F87-03	HDD access abnormality		IP-431 control board
Image processing abnormality	E88-01	Image processing abnormality is detected on the CB (control board).	If a copy being made when an error occurs, the machine stops immediately after completion of exit of the copy, and main relay and 24VDC are turned OFF.	CB (control board) SCDB (scanner drive board)
Control board communication abnormality	E89-01	Job object pointer abnormality (The page management object is not obtained with any causes.)	The machine stops immediately.	CB (control board) ICB (image control board) PRDB (printer control board) SCDB (scanner drive board)
	E89-02	Memory copy sequence abnormality.		
	E89-03	Through copy sequence abnormality (Cause can not be determined.)		
	E89-04	Memory scan signal stop is not completed.		
	E89-05	Memory printer signal stop is not completed.		
	E89-06	SW2 (sub power) OFF processing is not completed within a certain period.	The machine stops immediately and the all indicator are gone out on operation panel.	CB (control board)

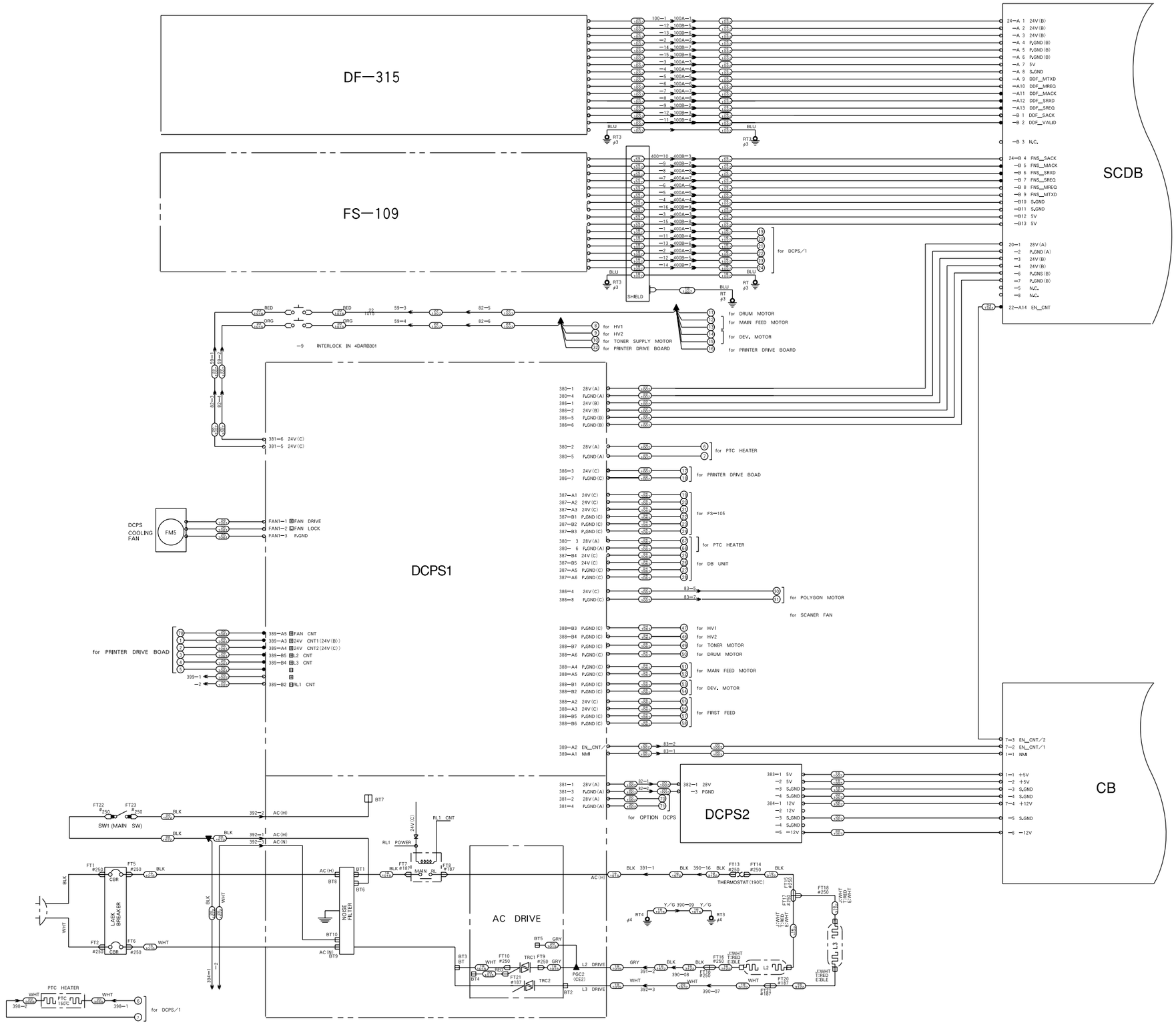
When any one of the following abnormality occurs, the user can disconnect the faulty unit temporarily.
When an error code is displayed, press the AUTO RESET button and turning the SW2 (sub power) OFF/ON according to the LCD message allows you to use the mchine until you turn the SW2 OFF/ON again.

Warning code	Contents	Separation subjects	Remarks
10-3	DB communication abnormality	DB unit (all tray)	Tray can not be selected.
18-2	Tray (lower) lifting abnormality	Main body lower tray	
18-3	DB tray (upper) lifting abnormality	DB upper tray	
18-4	DB tray (middle) lifting abnormality (LCT)	DB middle tray, LCT	
18-5	DB tray (lower) lifting abnormality	DB lower tray	
51-7	ADU feed motor abnormality	ADU	Duplex mode can not be selected.
60-0, 67-1 to 3	RADF abnormality	RADF	RADF can not be used.
70-1	FNS communication abnormality	FNS	FNS can not be used.
77-1 to 7, 77-10, 77-30	FNS tray (tray 2 and 3) abnormality	Tray 2 and 3 (FNS)	Tray 2 and 3 (FNS) can not be used.
77-8 to 9, 77-21, 77-22	Stapler abnormality (FNS)	Stapler (FNS)	Stapler mode can not be selected.
87-2, 87-3	IP-431 communication abnormality	IP	Printer can not be used.

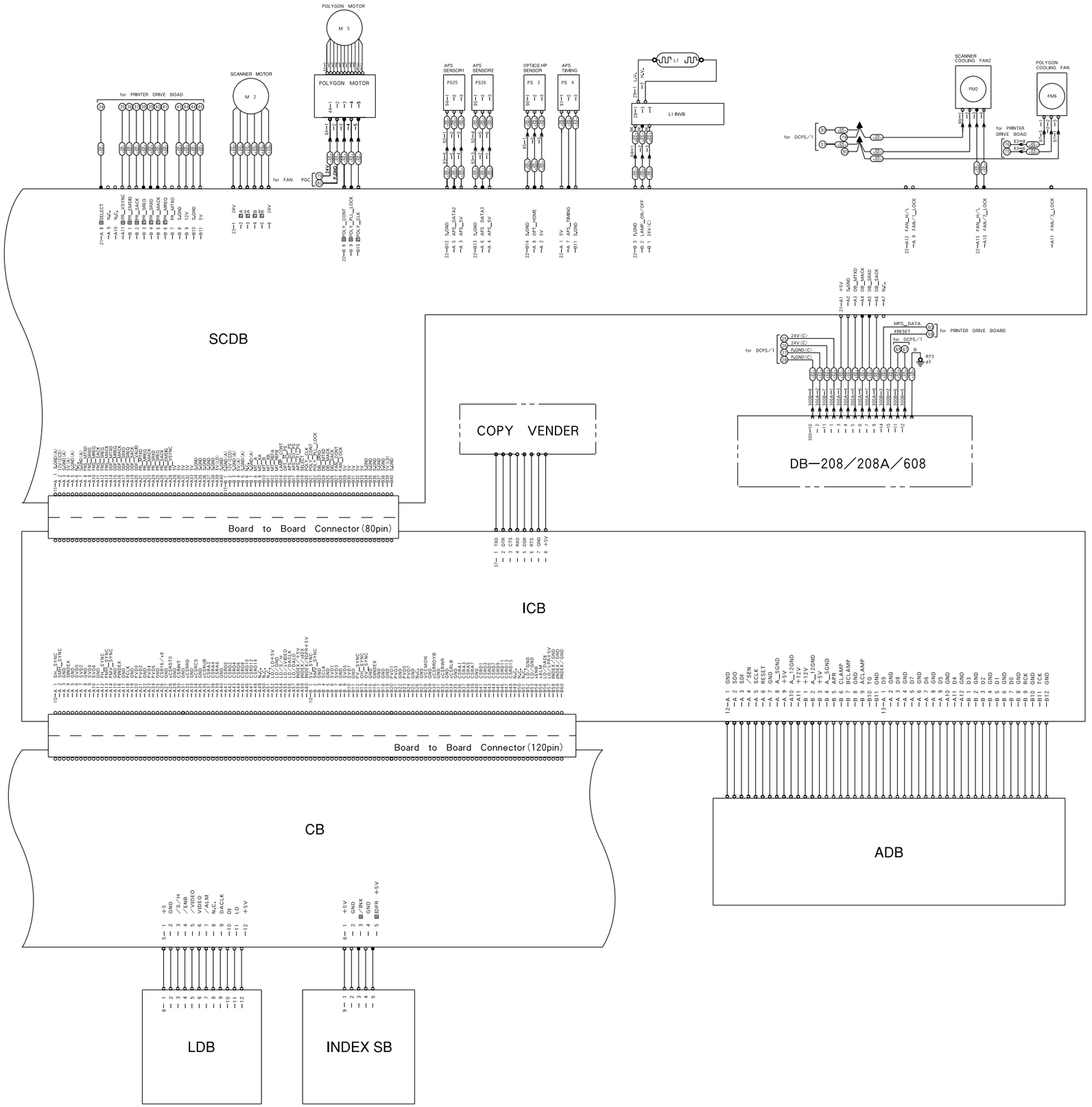
7

APPENDIX
(7045 Overall Wiring Diagrams)

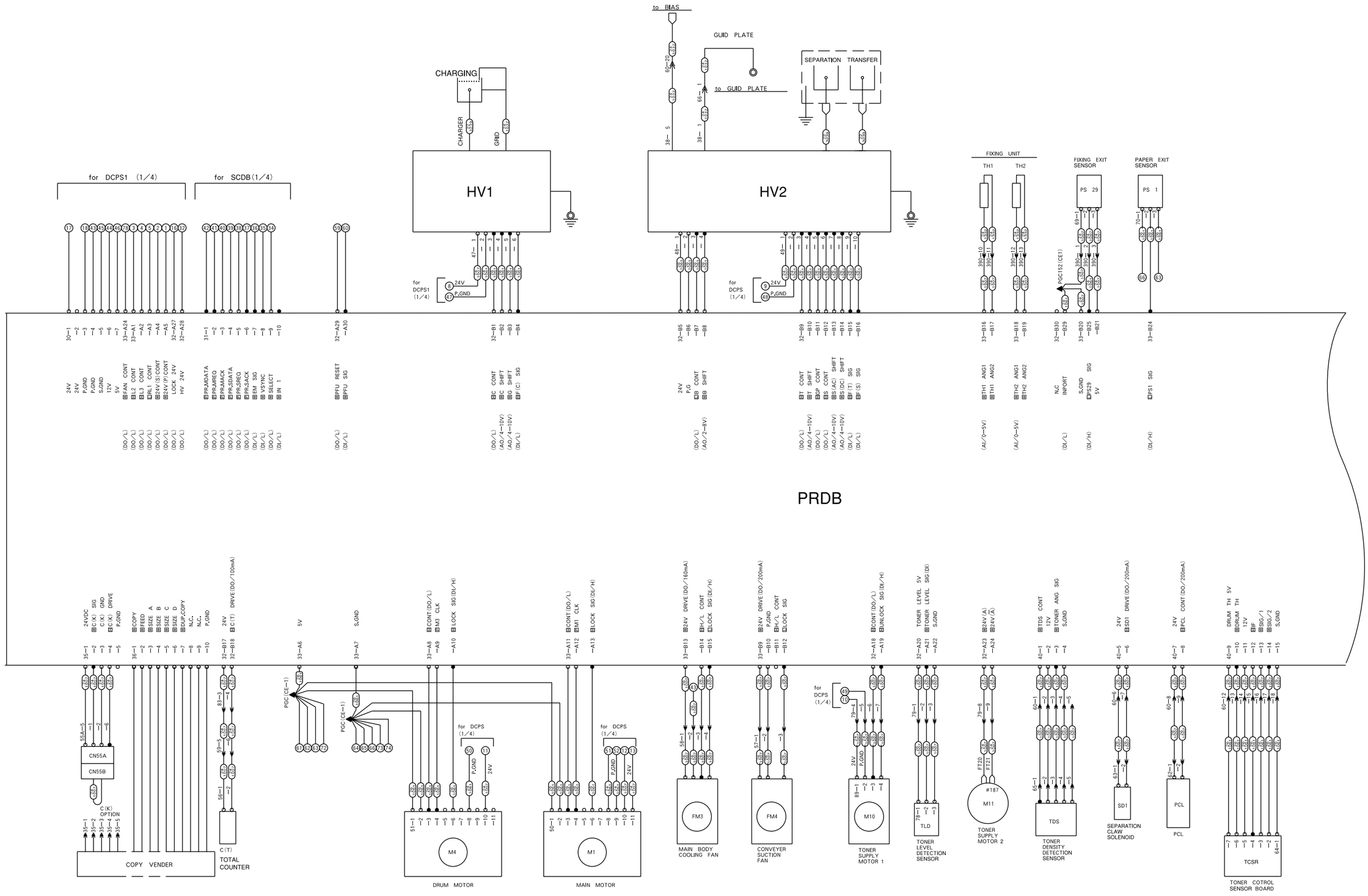
7045 OVERALL WIRING DIAGRAM (1/7)



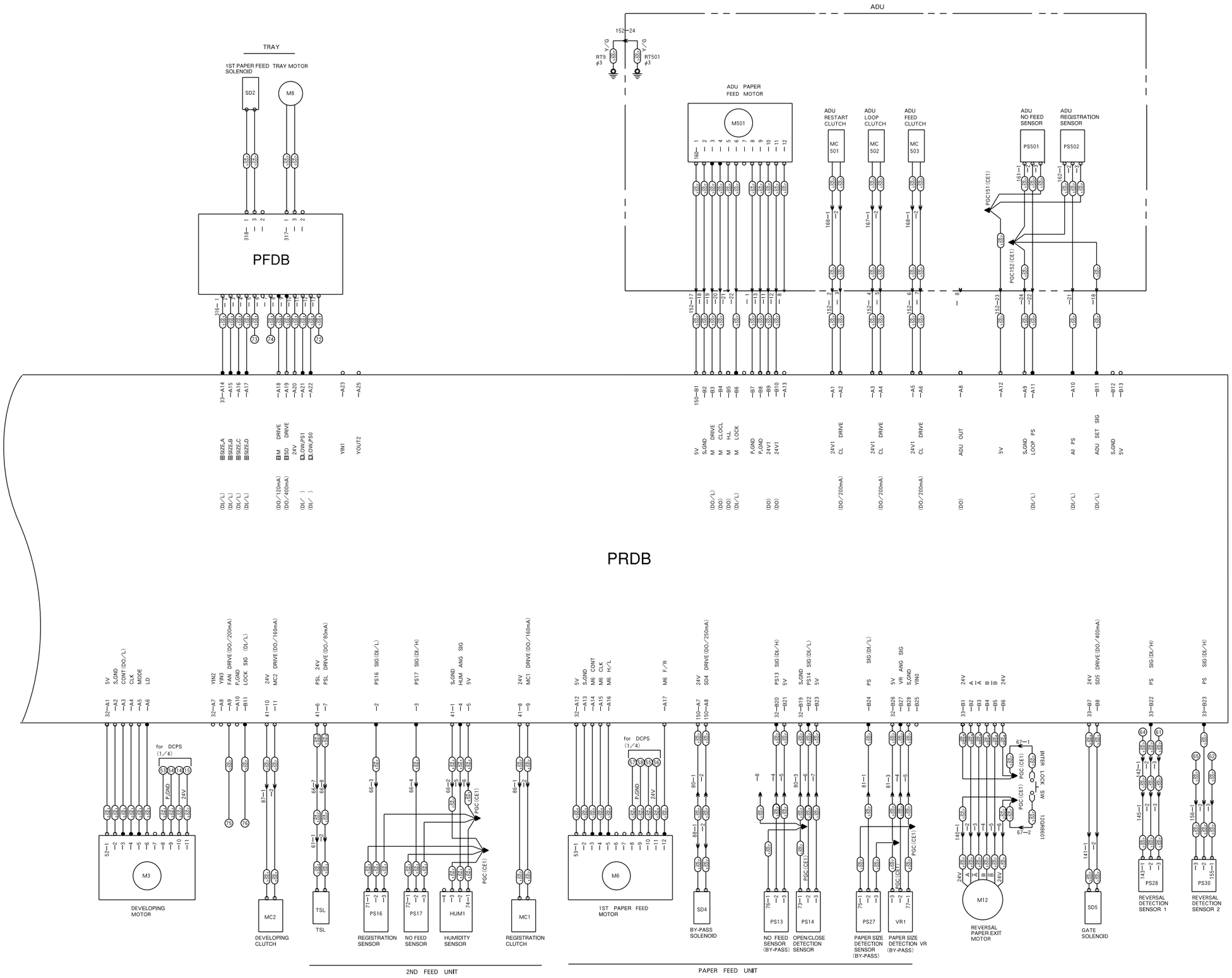
7045 OVERALL WIRING DIAGRAM (2/7)



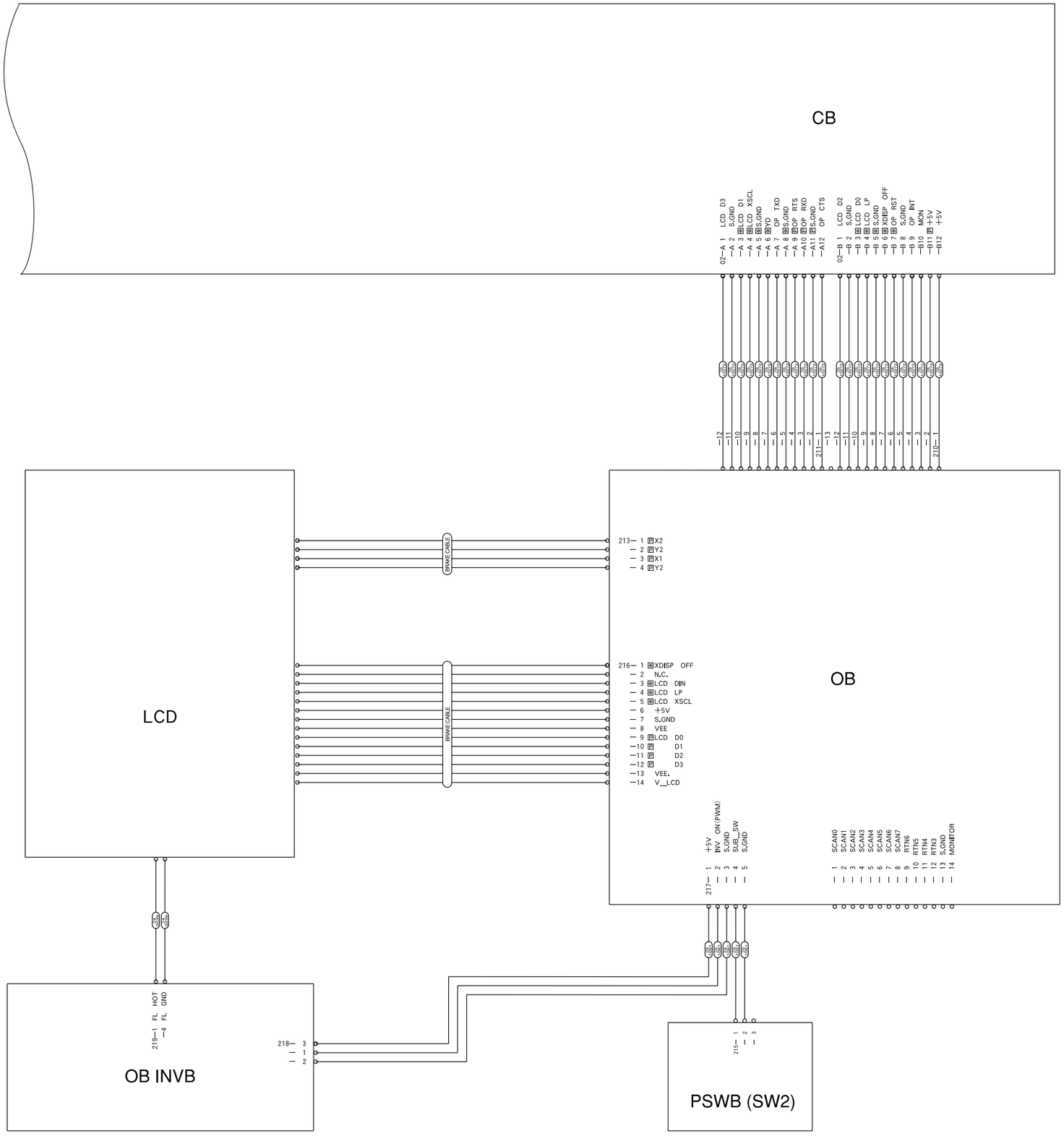
7045 OVERALL WIRING DIAGRAM (3/7)



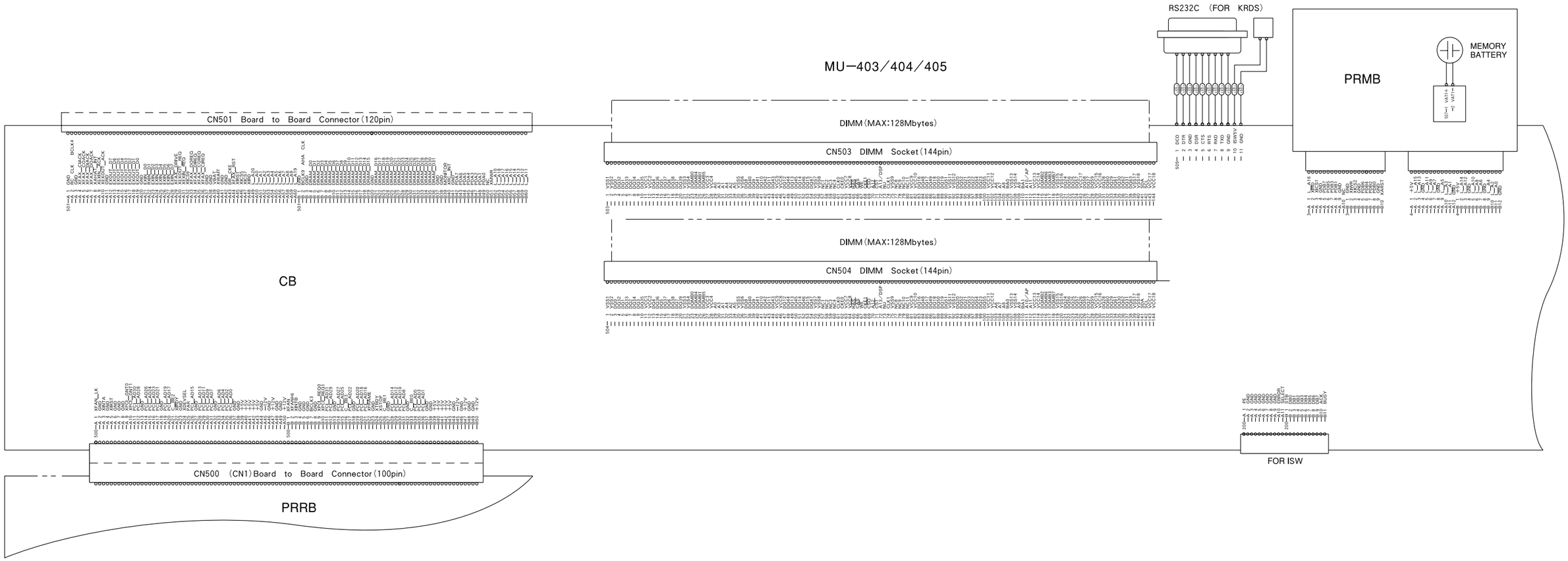
7045 OVERALL WIRING DIAGRAM (4/7)



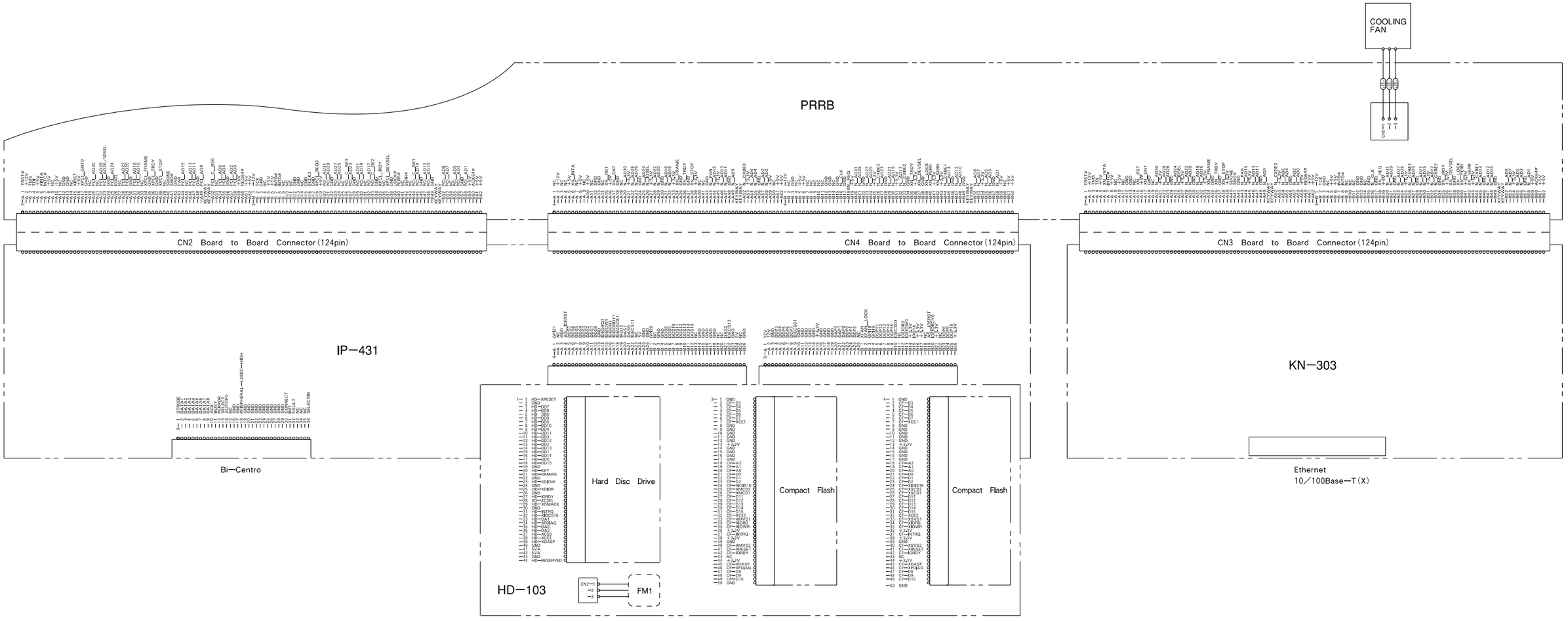
7045 OVERALL WIRING DIAGRAM (5/7)



7045 OVERALL WIRING DIAGRAM (6/7)



7045 OVERALL WIRING DIAGRAM (7/7)

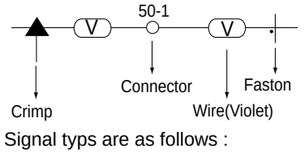


[How to see the diagram]

1.The signals shown reflect levels present under normal idling conditions with the main switch turned ON.

2.Wiring symbols in the figure are as follows.

(1) [Symbol]



(2) Signal typs are as follows :

- H Active high
- L Active low
- * Analog signal
- P Pulse signal

(3) (RC) is ribbon cable.

(4) Signal flow

The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.

Example)